Shannon:

Hello and welcome to another offering of Effective Practice Briefings. We are speaking with Dr. Alice Udvari Solner. She's a faculty associate at the University of Wisconsin-Madison. She is in the Department of Curriculum and Instruction. She's been a special education teacher in the Madison Public Schools for over ten years. And she is here to speak with us today. Dr. Julie Smith is also with us. She is with the State Improvement Grant and our curriculum development person in the field. I'm Dr. Shannon Simonelli at the Center of Disabilities Studies acting as your host and moderator. I'd like to welcome both of our speakers today. Julie, Alice, good morning.

Julie:

Good morning Alice, I'm so glad you're able to join us this morning.

As I usually start these interviews, I'd like to ask you to talk a little bit about your journey that led you to finding Universal Design for learning an effective way to support inclusive education.

Alice:

Certainly. Thank you for the opportunity to speak. As you mentioned in the introduction, I began as a special education teacher, teaching in the Madison Schools and working with students with a very wide range of abilities and disabilities. At the time I was teaching, which was the early nineteen eighties, we were just attempting to bring students, with and without disabilities, together in general public schools and in general ed classrooms. It was quite a long evolution and revolution over several decades, in order to have teachers really coming to the table together to plan curriculum. I feel very lucky that I was able to be at the grass roots of that process both as a teacher, myself, and then eventually, I became a teacher-trainer where I worked both within the departments of Special Education and General Education to provide coursework and preparation for any student who was getting teacher certification out of the University Wisconsin Madison.

My position at the university began about, now it's sixteen years ago, and my charge in fact was to try to build a bridge between the preparation program of special educators and general educators and to seek a way that they could encourage and increase collaboration in planning for a range of the students who would be in the public schools. Essentially, my teaching, research, and work in the schools, in communities around Madison, has really focused on how teachers design curriculum and instruction that will be responsive to diverse learners in their classrooms.

I have been completely fascinated by it. I've never been bored in sixteen years because, as I look at what people are doing, I realize that our goal is to find out how, we as educators, can really make our teaching practices congruent with and also challenging to those students who challenge us the most. That is essentially the essence of differentiation.

As I tried to investigate that question, “how we make our practices congruent to and challenging for those most difficult students”, I was able to secure a Federal research grant in the mid 1990’s. From that four-year research investigation, I was able to bring in teams of teachers, who were at the point where they wanted to problem solve around their own teaching, the kinds of students they had in their classrooms and also their collaborative teaching relationships. What the Federal government allowed me to do was to really try to document innovative practices that teachers could use in order to support diverse learners. That really sort of began my professional journey in spending concerted time with teachers and trying to look at their thinking and their decision making processes as they began to grapple with issues of differentiation.

Out of that research study, I was able to spend time in collaborative team meetings with teachers to try to put in place a process by which they came to their decisions around particular students and how two teachers or a team of teachers could come together and essentially use a common language to talk about the design of curriculum. Ultimately, I began calling that a Universal Design for differentiation.

Julie: [5:33]

As most people know, Universal Design is a term that came out of architecture and made it where different parts of the community are buildings and that kind of stuff are accessible to folks with disabilities but everyone can use it. Based on that, could you outline a few of the major components that constitute Universal Design for learning.

Alice: [6:04]

Serendipitously, I actually lived with an architect who used Universal Design in his plans and engineering. It's very interesting, to me, to see how the parallels between many different fields with key purposes. As I think about Universal Design, in a broad way, it parallels with what you had just said, in that we're trying to create and design products for environments in some way, so that they can be used without the need for modifications or specialized designs. When we applied that concept to the school setting or school curriculum that really means that we're looking at a multitude of materials, methods, assessments that are created in advance. I think that's the key concept there, is that we create those in advance with a wide range of learners in mind, the learners that truly represent the continuum of abilities in our classrooms. Unfortunately, what has happened in the past is that we have not been doing that kind of advanced decision making.

Julie:

Can you speak a little bit to the difference between doing these advanced designs and their retrofit.

Alice: [7:34]

Yes, in fact that was a really critical piece of the research that we found. As we went in and looked at the way teachers planned-by-default was that they often came

together with one educator already having in mind a lesson. Essentially, the general educator has been trained through many decades to consider themselves as the person who owns and designs instruction. In fact, we've given those messages to people in teacher training. Then we've given messages in our training of special educators that they in fact, are not the owners of the curriculum, but that their colleagues are and they are there to fix things for particular students. Those two mindsets get us in trouble. They essentially put us into trying to retrofit lessons for students who have learning differences. What I mean by that is, we end up trying to develop accommodations and modifications for those students because they're entering pre-existing educational situations where decisions have already been made about how the lesson is designed, what materials will be used, what kinds of activities are going to be the best for conveying information.

Ultimately, we find out what doesn't match the students' needs. We put them in that situation and find out where there are mismatches. Ultimately, it becomes the responsibility of one of the educational team members to fix that lesson or to retrofit it to the individual student. In a sense, we're always kind of playing catch up. We end up making changes based upon not having flexible enough options in our lessons from the start. That's where Universal Design turns that planning process on its head by asking people to think about, at the start of the curriculum design, who your students are, what are their gifts and abilities and learning concerns. Then based upon that information about real students in your classroom, then we need to look for multiple means of representation, multiple means of engagement and then multiple means of expression.

Those words, representation, engagement and expression have been connected with the Universal Design for learning concept. If we make that a little more understandable to educators in the schools, that essentially translates to looking at decisions in the area of the content of what we teach, which essentially means what students learn, the process decision which have to do with how students are learning, and then the products that students produce as demonstrations of their learning. That whole idea of Universal Design allows us to build in what we hope are better and more flexible options into the curriculum, at the outset, rather than trying to retrofit the program after it has been established.

Julie: [11:16]

Shannon, is this a good place to take a pause?

Shannon: [11:24]

Let's give our listeners an opportunity to just integrate some of this and we'll be back with you in just a moment.

Part II

Shannon: [14:13]

I'd like to welcome our listeners back and we'll turn this back over to Dr. Julie Smith.

Julie: [14:19]

Alice, I would like to clear up some misconceptions and misunderstandings. Well, not exactly clear up, but there are a lot of acronyms out there, UDL-Universal Design for Learning; UBD-Understanding by Design or the Backward Design stuff and Differentiated Instruction. Some people see that those are very separate processes and other people are seeing them as very compatible and able to integrate those things. I'd like you to take a minute or two and just elaborate on that.

Alice: [14:57]

That is quite a complicated question, but I'll try to do my best because I have actually been trying to do that thinking myself and I recognize that teachers are introduced or information is provided with these different acronyms and then they're expected to do the synthesis, to see the connections between them.

Let me begin first with Universal Design and Differentiation and then try to bring in the Understanding by Design or what would be called the Backwards Design process.

To me the connection between the broad concept of Universal Design for learning and Differentiation is that they do, in fact, go hand in hand, the idea of designing something on the outset with flexible options for a student's participation is essentially the same concept as Differentiation.

Differentiation however, then gives us many more details to think about. What exactly might we differentiate? We then might look at those three different areas. Might we change things in the content of what we teach, the process of what we teach, and the products of what we teach so that there are differentiated options in each of those areas?

For instance, in the Universal Design process that I have promoted teachers to use and what really did come out watching teacher thinking and people who are effective at differentiation is that when we look at the area of content, we would want to try to differentiate different multi-level learning goals for students because that has to do with the content of what we teach and what we expect students to learn.

Content decisions also relate to materials. Do we have a wide range of multi-level and multi-sensory materials? We would want to make those decisions, up front, in the content area.

In terms of process decisions, we want to look at what might be the best or varied lessons format for teaching something. In fact, we might ensure that there is a balance of lesson formats that might include more traditional techniques like large

group, whole class, question and answer, but then we need to include things like active learning, cooperative learning, peer-partner dialog, computer assisted learning.

Those are all sorts of things, what I'd like to call the infrastructure, of how a lesson is taught, it's format.

Again, through Universal Design, we want to assure that there are multiple ways to teach something within a day, a week, a lesson that captures more learners than those who are the very traditional learners responding to the techniques that have been used for years: lecture, demonstration and practice.

Other decision points that we would probably make within the process area is to look at how we group students, what our learning environment might look like, what student grouping and teaching strategies, in fact, that we might use. That's sort of how we teach. Are there some unique behavioral strategies we might use for particular students? Are there unique questioning strategies? Those are all points of differentiation for particular students.

Also in that area, we might look at what kind of supports students need to learn. So it's the process of learning. Do they need prompts and cues from peers that could be delivered unobtrusively? How do our general and special educators share supervision and instruction within that classroom because it's the process of teaching? When those points are discussed up front, then students are more effectively supported in the classroom when the lesson is actually delivered.

Then the last area where decisions of differentiation need to take place, would be the product area. There, we would be looking at what kinds of varied authentic products might the students produce, rather than just having one way to assess the student. Again, moving more toward authentic and performance tasks to projects versus having only one measure of somebody's abilities and knowledge through traditional tasks of quizzes and test and such.

Also within this area, the product decision point, we're going to have to assure that there might be different criteria for assessing students' products or what they produce. That might mean we "weight" criteria differently in terms of effort, ability, mastery of key concepts. Then also, ultimately in this area, we might choose to have changes in grading procedures for students.

To me, the Universal Design and those kinds of decision points are connected very seamlessly. When we now take those two concepts and we set it sort of beside and compare it to the Understanding by Design which was really put forth by Grant Wiggins and Jay McTighe. Their concept, I think, is also integral to this kind of thinking process. It just summarized the basic premise behind Backwards Design, is that they promoted the idea that what we have to do first is identify what we desire for students to learn. What are the big concepts, the enduring understanding that should guide our teaching? With that, we're thinking about what all students should know and be able to do, what they might know in terms of knowledge, facts, concepts, principles but we might also be looking at what kinds of skills are important for all students, the strategies, the methods for learning.

An easy way to frame this is in the form of essential questions or essential themes or key problems that we want to put forward. The Backwards Design process says, we must start there so that we understand what our learning activities are promoting. Then, the next step, in Backwards Design, is to think about what evidence we need to reveal what students understand. What would we accept as evidence of student understanding? That is essentially, what will students produce and how will we assess it? This to me is product decision of the Universal Design for learning process.

We think first about worthy understandings and enduring concepts for all students. Then we think about what are the products students need to produce to show us that they know. The next tandem decision that we have to make then relates to Differentiation. Well, if we believe there are certain products of importance, can we assure that they are varied products that are valued and that perhaps we might use individualized criteria for assessing those products.

The next step in the Backwards Design process is, once we think about those first two issues, what we want to teach and what's acceptable evidence of students understanding, only then can we start planning learning experiences that support those outcomes. To me, that is when the other decision points of the Universal Design process come into play. That's now when we say, if we want students to produce this kind of product or we want this understanding to be engaged in and that students actually gain these kinds of skills, now I can go back and think about how to teach and also maybe define more clearly what to teach. I might now have some unique multi-level goals that relate to a learning activity. I might also have a learning activity that follows several different leveled formats. Again, the planning of the learning experiences is when those other decision points in content and process can be pulled in.

Julie: [24:58]

Great, I think that helps tie things together for people who have a little understanding of all these things that are lost in the sea of acronyms, which is very easy to do. I want to back this up for just a little bit because, in light of the standards and accountability and all that stuff, there’s such a focus, at least locally now, on the assessment parts of that and the different products and you referred to using some different criteria for those decision points and for the assessment of the products. Could you maybe give us, and I don't want to put you on the spot, but an example of one that teachers can see that in a kind of a more concrete way?

Alice: [25:45]

Yes, let me think about a particular example that might be helpful. I'm going to be very specific. And, maybe I can give a student's scenario that might help teachers think about the way they might vary criteria for performance. In fact, this comes from a real classroom and one of the classrooms that was part of our research study. We entered into this classroom as they were going to begin to teach Wisconsin history. I was so glad that I was able to be a part of the design of the lessons around these concepts of Wisconsin history because legislatively, I believe at some point,

teachers are expected to teach state history in all fifty states. This is really where certain states standards, curriculum standards come in as being central to the instruction.

In the classroom that we entered into, there were just a wide range of students. There were students who were really advanced in their thinking and understanding of some of the concepts of Wisconsin history and those who had little or no experience. Also within this class was a young girl named Sarah who had moderate to severe intellectual disabilities. She was just an emerging reader and a very selective speaker.

On the outset, the teachers needed to look at what were the big enduring understandings that they wanted all kids to get out of this. They looked at state's and local curriculum standards as a beginning point to see what might be enduring and important to come out of this instruction on Wisconsin history.

One of the history standards was something like this. Compare and contrast changes in contemporary life with life in the past by looking at social, economic, political and cultural events that occurred in time. That's a big concept. This is fourth grade.

They wanted students to be able to get those concepts. In doing so, then, they looked at what kinds of products might be very helpful for students in order to show that understanding. Out of that came the idea that students would be able to investigate some aspect of personal life and compare and contrast the differences between current day and life in the 1800's.

Students could actually then pursue a number of different topics of their choice. They're building in variety and differentiation based on student's interests. The products could vary in terms of what the topic was, but they wanted all students to produce some kind of written report. They then constructed learning activities to help students examine these differences and play around with concepts of this and materials of the 1800's.

We have three very different students in this classroom. One of whose name was David, who I would say was advanced in his understanding and readiness for looking more analytically applying concepts more readily. The idea for David was, but he was also a very intrapersonal learner, somebody who didn't like to work in groups, somebody who wanted a lot of teacher interaction.

So, the idea for David, as an outcome in his product at the end of this unit was to actually read a biography of his choice and write journal entries from the perspective of a child in the 1800's. Then he would conference with the teacher to discuss the differences that he had discovered in his life and the experience of this pioneer child. This was also a young man that couldn't take perspective very well. He liked to work alone. He didn't really care about peer interaction and so this sort of put him in a position to have to do that. That kind of goal and outcome really shows application and synthesis on his part in terms of a major learning goal for him.

Also in the classroom was another learner who was very active, kind of an out of the box kind of guy. His name was Trevor. He, in fact, was not somebody who was

interested in biographies or people but extremely interested in technology and games. When the students had a choice, the teachers identified areas that dealt with daily life of children, such as what kinds of games were played. And also, how things might have changed from the kinds of recreational activities kids did need from the 1800's till now. So Trevor's final report focused on tracing the development of a game or some form of technology from its nineteenth century form to the current advances that we've made. Again, he has a different topic, but essentially will be producing something in writing.

David also has a different topic, but will be producing something in writing.

Then we have Sarah who is a student who is an emerging reader and who is just beginning to grasp some of these major concepts. Her learning goal and then outcome was still to produce a report, but to dictate what she saw as differences between photo images of the 1800's and current day. Really, her goal became that by the end of the unit, she could differentiate symbols, objects, activities that belong to the nineteenth century and those of today. That was a very meaningful and challenging goal for her.

But if you go back and listen to each of those goals that I set out for the students, the three different students, they still relate back to the state and district standards and the enduring understanding, which is essentially what we want to try and do when we differentiate.

So, students producing things on different topics and sort of showing their knowledge in different ways, we may also evaluate their report differently. For Trevor and David, we might look at a rubric that is very similar because both boys were really quite capable, but had very different learning styles. We might look at their reports and assess it in similar ways so we might want to take more traditional report rubric and identify if this person is sort of performance at the beginning level, developing level, at an accomplished level or is their product exemplary?

We might have criteria that we look at where we want to say, “is the topic that they picked, effectively related? How is their report organized? What is the quality of information that they produced? Is it detailed sufficiently enough? We might also assess their grammar and spelling, whether or not they made their report interesting. Is it neat and conveyed in a professional way? Was it turned in on time?” Those are traditional criteria for assessing any kind of written report.

Now, can we use that same kind of criteria for Sarah's reports? If we did, I believe that it would be, that she'd be unfairly assessed as being unable to perform. It's obvious given somebody who is a learner that looks so discrepant to others in the classroom. But, I still want to assess Sarah's report on criteria that really reflects what she knows. In fact, I might look at some of that criteria and say, "What's important to Sarah?" If I think about the area of the topic, was she able to select critical pictures that showed the difference between this life and that life? We also maybe want her to tell a story related to the concepts that are presented from the 1800's. She might logically order four events or four things about the 1800's and be able to dictate a sentence about them.

Now we've got topic and organization of her report, those are still the criteria we used for the other boy's report but the content and quality of what we're looking is different. For Sarah, in grammar and spelling, we're going to be asking her to be able to write at least two of those sentences on her own without prompts.

I'm hoping that example gives a little bit of an idea how we translate and the enduring understanding that is connected to state standards, how the goals may vary for different students, how the products can vary and then how we might look at different criteria related to their products.

Julie: [36:16]

That's a perfect example.

Shannon:

OK, I wonder if this might a natural place to take a break and we'll let our listeners integrate this and we'll be back in just a moment.

Part III

Shannon:

OK, I'd like to welcome our listeners back for the final section talking with Alice and Julie. Go ahead Julie.

Julie: [41:04]

Thank-you Shannon. Alice, earlier you had talked a little bit about wanting to return to the outcomes for the students that were in your study and I think you're example of how Universal Design for learning, Differentiated instruction, Understanding by Design and the assessment in looking at different ways of doing that leads us into a discussion about the outcomes for students with and without disabilities under this practice.

Alice: [41:35]

Sure, thank-you for bringing me back to that. Let me set up some of the parameters of the actual research study that we did in order to see whether or not there was benefit for students by using a different kind of planning process. Initially, we went in and worked with teams that had not considered elements of differentiation and some of these teachers were novice teachers, brand new and some were veteran, some had students with disabilities in their class before, others had not. There was real wide range of experience levels. What we did first is, we went in to the classrooms and identified a key student with a disability to take single subject data on in terms of their performance, they're on some key variables. What we wanted to look at that we thought were indicators as to whether or not the learning was working well and that there was benefit and change, is that we wanted to look first at how engaged the student was in learning because engagement is a necessary element in order to learn.

The students we were looking at that time, had really fairly significant disabilities. Some students were non-verbal and used wheel chairs, student who had cortical blindness and also did not speak, a student with significant autism and was using an alternative communication system. We tried to look at those students who sort of challenge us the most and whether or not by having advanced decision dialog and co-planning in these areas differentiation if there would be change in key variables.

One of those variables that we could observe and measure was student engagement in learning. We also looked at whether or not there were reciprocal interactions going on between students with and without disabilities because again, if we're looking at including students effectively in the classroom, they should be interacting with others and that interacting around social and academic components is a necessary element of learning.

And then we also looked at a third variable which was how many teaching and student interactions went on. So, how many reciprocal interactions went on between the General Education teacher and the child with disabilities. When we went into classrooms and initially took data, we found some pretty abysmal data.

We saw students in a three-hour period of observation engaged only at the most five to ten percent of the time. Sometimes, students were engaged even at lower levels than that over time. We also saw very low percentages and frequencies of interactions between students with and without disabilities and between the teacher and the student with disabilities, which we predicted.

We predicted that it would be the case and that's why teachers wanted to engage in this problem solving. They themselves were not feeling effective in their practice they felt like they were missing kids and not hooking them into learning or finding a way for them to express what they knew. If students were not interacting with other children or the General Education Teacher, we can guess who they were interacting with. They were probably interacting with, and our data showed it, with a para-professional who was beside them, or the special educator in the classroom, or sadly, they were alone and passive in instruction for the majority of the instructional time.

We took teachers and did some intensive training. Initially, we provided several days of in-services outlining the Universal Design process and having them doing problem solving using real students in their classrooms and beginning to get a jump on upcoming curriculum.

We allowed teachers to then self-select an area of curriculum instruction that they really wanted to focus on. We did that very intentionally because our findings reflected how overwhelming it was for teachers to begin to change their practice, that change needed be self-selected and it needed to be manageable.

Some teachers said, I really want to look at the opening time in my classroom when we bring students together to do sharing because the child has no way of participating. Others said, I really want to look at the social studies unit coming up. Others wanted to look how they did their literacy centers and so every teacher really picked something different that would be the focus of change.

We then also sat in on collaborative team meetings. As part of this project, teachers made a commitment that they would come together once a week to pre-plan upcoming curriculum. So, included in that team, at a minimum, were the General and Special Educator who shared responsibility for the students. We also included Speech and Language Therapists, Occupational Therapists, Physical Therapists, and at particular times, the parent of a child with a disability. When that information could be shared to help us understand how curriculum might be modified or differentiated.

In those curriculum planning meetings, we first began as researchers, as participatory members. We helped prompt and facilitate those meetings for several weeks and then we faded our presence. The meetings then continued without the researcher present.

Then we began to take outcome data and when we went back into classrooms, we saw tremendous change for students who were our targets that we were observing. We went back to those three variables and we looked at again, engagement, reciprocal interaction between teachers and students and students with students.

What we did in our baseline data was also to take normative data on a single student without disabilities. How engaged with this child, how many interactions were they having, so that we had something to compare outcomes.

What we were able to do was to bring the students, with disabilities engagement up to nearly normative levels in the outcome data, which for us was just a fantastic outcome. Although variations, day-to-day, but statistically relevant in that the change in the data, changed in its slope and students were then maintaining engagement when lessons were designed differently.

Similarly, the kinds of interactions that were going on raised to a marked degree and, on some occasions, were up to a normative levels in terms of interactions between students and the interactions between the General Educator and the child which meant that now the lead teacher in the classroom was interacting with the child with disabilities as often as she or he was with a child without disabilities.

We know that instruction was going on between the General Educator and the child with disabilities. Whereas we didn't have evidence of that before. It was essentially someone else's responsibility.

We were pleased with these findings and more so pleased with some of the qualitative data that we saw in terms of relationships that developed between teachers and these planning teams.

What we found, then, is that we had teams of people using similar language to talk about curriculum and instruction. Prior to going into the study, working with undergraduates, from my perspective, in both special and General Education, these are separate programs. Special educators have a core set of courses. General Education, pre-service teachers, had a core set of courses and we were not bringing those people together to learn a common language for planning, or a common process, so that essentially people were trying to re-invent the wheel when they were trying to get together to have a collaborative relationship. Again, for the teachers, they began to become more efficient and effective in their planning because they had a common and agreed upon process to use.

Julie: [51:25]

Thank-you so much for sharing that outcome data and those are very impressive and I'm sure that it's sparking somebody's research as their looking at all of that which is great too.

I kind of want to bring it down to some of what's happening locally here in that a lot of the schools I'm working with, are under going restructuring with No Child Left Behind and in that process not only are teachers very stressed with trying meet the standards, but many of the schools have been directed to use certain programs in their curriculum that are much more prescriptive and don't give teachers a lot of wiggle room to start altering the way that they teach and well the assessments might still be up in the air, but it doesn't give them a lot of wiggle room in how to teach. It's a fairly prescriptive, highly structured, almost scripted type of curriculum and I'm wondering if you would speak to, a little bit, to that issue and how teachers might

begin to work with principles of Universal Design for Learning and Differentiated Instruction and Backward Design within those parameters.

Alice:

Right.

Julie:

It is a hard question.

Alice: [52:54]

It is. And a highly charged one and to tell you the truth, professionally, those kinds of prescriptive programs concern me because I do think that, used as stated, pulls us further away from looking at the individual needs of the students. And in fact, gives us license to again say, One Size Fits All. This is the one way things have to be done whether or not it's beneficial for students.

I have worked in a number of schools and some teams of teachers recently where a school has adopted a particular curriculum. There is one being used in our district when I was in the metropolitan school district which is a science program, the Foss Science Program and many beneficial things about this program and many teachers are finding some great advances with it in terms of student understanding. But, as with any kind of curriculum approach, that is laid out and prescribed, what students are supposed to learn and how they're supposed to learn is very rigid.

My suggestion, which is essentially a radical statement to teachers, is think about, again look at this prescribed curriculum and put it through the lens of Universal Design for Learning and also the Backwards Design process. Can you see the enduring understandings that are important to them in this curriculum approach? Are they transparent? What are they? and be able to name those. Because again, the danger that I see is that when teachers are using these prescribed approaches, they end up not doing this kind of thinking. They let the curriculum document or the curriculum program do that thinking for them. Then they're not able to see whether or not components are appropriate or inappropriate for a particular student. I ask them still to sort of use that lens.

If somebody pulls out a curriculum guide and program for me, I'll make them speak for a minute about what is the major purpose behind this? What are the teaching techniques or the lesson formats that are being promoted? And then having them stop and say, "Can I still teach these important concepts and follow the flow of this while still offering variation?" What are some personal aspects of my own teaching that I want to bring into this? Where are there points of flexibility in terms of how we teach this? And even being able to vary it slightly in those ways can help teachers then see what particular students are responsive to.

An example of this, that I just came across, was working with a high school math teacher in a small community outside of Madison and they adopted, actually a quite innovative curriculum approach called Core Plus Mathematics which is a very language based, problem solving and applied mathematics.

Many students do well with this. Some do terribly with it. There's concern in the community as to whether or not this is an appropriate approach that has been adopted. The great benefits of it is that there is, it includes group problem solving and a lot of discussion and use of real examples.

But it's very prescribed. The teacher began struggling and thinking there are some kids here that are having difficulty with the complexity of this. So what he did is that he varied his teaching techniques. He essentially created several days where he divided the class into two learning stations. One learning station that had half the student at it used the Core Plus materials as written. Then he created another station which he referred to as, he's a very humorous teacher, he called it, "naked math." What he did, he took the curriculum guides and he stripped things down to their major concepts, the major equations and formatted it in a very sequential, step by step manner. He had a group of students engaged in naked math. The concepts being taught across both groups where the same, but they were doing it in different ways.

Then essentially, he would flip-flop those groups, so that students got experience doing both type of instruction. He would identify key days where that would happen so that students did get the benefit of trying things in different ways, having instruction delivered in two different ways. While still, I felt like he was following the guidelines of the district to carry out the selected program.

Julie: [58:42]

That's a neat example and it is a kind of a demonstration of resourcefulness and courage and creativity in a situation that makes many teachers very fearful of trying something outside of what is prescribed. Hopefully this little example will help spur some thoughts about how they can, as they find themselves between a rock and a hard spot, how they can navigate this, this space that they occupy.

Shannon:

So, I noticing that our time pretty much to a point of closure I’m wondering if there's any last comments either of you would like to make before we say goodbye to our listeners.

Alice: [59:27]

I just want to thank you for the opportunity to speak to your audience. I am excited about the kind of work that teachers are doing every day in their schools and I feel that essentially what I have been is a documenter of their grass roots work to make change within their own classrooms. My hope is that by putting this in places where other teachers can see it, try it out, think about it in relationship to their own practice, that information will be carried on and in fact, improved over time.

Julie: [60:00]

I think that what you've shared with us today is something that is of interest to teachers, that they're really trying to move in that direction and I think your

comments and stories about this process and journey will maybe inspire them to hang in there and persevere.

I thank you very much for a very productive conversation.

Shannon:

Thank-you both. Alright, so I hope you decide to join us for future Effective Practice Briefings in this series. Thank you so much for your time. Aloha.