Mark Royce (00:00):

Hi Mina.

Mina Bhagdev (00:02):

Hi Mark!

Mark Royce (00:02):

How are you doing?

Mina Bhagdev (00:03):

I'm fine. Thank you. How are you?

Mark Royce (00:06):

I'm doing pretty well. I'm excited to talk with you today about your position in the modeling community and the work you're doing. And so let's get started. Let me ask you to share a little bit about who you are, what you do, and your passions, and then we'll go from there.

Mina Bhagdev (00:26):

Okay. I have been an educator, I think for over 25 years now. Six years were in England and then I moved to the United States in '98. I started teaching full time at Chandler Unified School District in 2000. Initially I was in the junior high school and then I moved to the high school, about 11, 12 years ago, which is when I started doing modeling chemistry. So, I was introduced to modeling chemistry by Phil Root. So shout out to Phil Root there. He basically sold me on this idea that teaching chemistry should be done from a real conceptual standpoint, which was always my belief system anyway, but he showed me a way to really focus in on those concepts and also to teach it from a historical perspective, which was something that I had never thought about before. But once I started finding out more about modeling and how the chemistry storyline is put together, I was sold hook line and sinker. I've never looked back. So I've been modeling for just over 10 years now.

Mark Royce (01:49):

Yeah. Awesome. So when you first got introduced to modeling, what did you discover at that time? And did you go to a workshop? What happened there?

Mina Bhagdev (02:01):

So I was thrown into this brand new school where I was given the chemistry standards and told to go teach. And those chemistry standards was so broad that I had no idea of where to start even. And how far to take it? Where does honors chemistry start? Where does honors chemistry stop? Where does AP chemistry start? Where does AP chemistry stop? You know, I had no clue about the breadth or the depth to which I should teach. So my initial contact Phil, he introduced me to the modeling community and I started to work with Phil on some of the paperwork that the modeling community puts out for the chemistry curriculum. And I started reading those teacher notes. The teacher notes were my guideline. They were my lifeline in that first year of teaching chemistry. And really, just having it pointed out to me what the misconceptions that the students have gave me such an advanced level of understanding of what was going to happen in my classroom before I even got into my classroom. So then I was able to

gear my lessons towards helping students either address existing misconceptions they may have had may have already come in with or to avoid them developing some misconceptions.

Mark Royce (03:46):

Did you ever attend one of the workshops, the modeling workshops?

Mina Bhagdev (03:53):

Yes. So my first workshop that I could get into was actually a physical science workshop at ASU. And so I spent my summer learning how to address some classroom issues or, or classroom set up, how to engage students in conversation, how to help them engage in the lab work. And so my first modeling session was a physical science session. And then I did the chemistry one session. So I was able to really focus my chemistry teaching using that workshop.

Mark Royce (04:46):

So what key methods and insights did you gain through the workshops?

Mina Bhagdev (04:53):

For me, it was really facilitating those discussions between students. Like whiteboarding can be approached in so many different ways. And how do we get all students engaged in those conversations that help them to cognitively engage in those complex ideas and verbalize them? Because I truly honestly believe that when students think about what they're going to say and how they're going to say it, that is where the true learning for them occurs, because that is embedding the information that we are trying to put across. That's embedding it into their brains so that they can know it, they can truly know it. So for me, especially the modeling chemistry courses that I took and that I co-lead with Larry, really it's the discussions is where the rich learning happens.

Mark Royce (06:04):

Hmm. So I know you're involved with an organization in Phoenix called STEM teachers, PHX, I think, or STEM teachers, Phoenix. Tell me about that.

Mina Bhagdev (06:16):

So STEM teachers, Phoenix is part of the STEM Teachers XYZ community. At one point I had attended a modeling leadership course in New York city. That was hosted by STEM teachers, New York and STEM teachers, New York city basically have this it's this organization where they provide STEM workshops for teachers, by teachers, about teaching. And the three of us that attended from Phoenix that was Wendy, Shantelle, and myself. The three of us were so excited by this idea of a local community, providing workshops, providing support for STEM teachers, that we sat down, after a day with the STEM TeachersNYC people and said, how can we do this in Phoenix? And so when we came back home, we, we launched it. We started STEM teachers, Phoenix, and now there's a group of STEM teachers, communities all over the nation and doing very similar things.

Mina Bhagdev (07:44):

So we kind of all worked together, but we're all separate little entities. And it was really amazing to be able to pull, elementary and community college and K-12 teachers all together and lead workshops for them how to how to engage students in science or how to teach science. And a lot of the workshops

that we do are grounded in Phoenix. They are grounded in modeling. We originally started up under the umbrella of AMTA, and Colleen was nice enough to help us get started and to allow us to use the AMTA umbrella so that we can set this thing up, get our EIN number, start collecting some money so that we could run workshops, but it's basically all voluntary. It's all voluntary work. Our presenters, they work on a voluntary basis and our board works on a voluntary basis. And we just have a really great community of educators who are passionate about STEM workshops. So you can check us out at STEMTeachersPHX.org.

Mark Royce (09:17):

I read, you said that words matter. And you mentioned that often microaggressions are just throw away careless comments and how even they can come across as intended as a compliment. Talk to me about that idea, that that words matter.

Mina Bhagdev (09:39):

So a lot of microaggressions are actions. They're just small actions that we do or don't do in our classrooms. So for example, an action might be having a test on a religious holiday that is not a mainstream Christian holiday. That can signal to students that you don't really care about their culture and how their culture impacts their school life. In terms of what we say to students. For example, if you were to... If we were in a classroom together and the teacher said to you, Hey, Mark help Mina with that math. That signals to the female student, that the men are the ones that can, or the males students are the ones that can do math. Whereas girls are the ones that need the help. So, it doesn't come from a bad place. The teacher is just trying to help that peer tutoring go on in the classroom that we really want. But, we need to be really cognizant and we need to be very intentional about recognizing that there are inequities or perceived inequities or stereotypes that exist that we can actively be combating. So, if we could just try and be cognizant of that, and I'm not saying never ask a male student to help a female student with math, but if that is something that happens a lot in your classroom, then that signaling... Microaggressions are tiny things that happen over and over and over and over again. And that's when the signaling becomes very powerful, I guess, is the word I'm looking for. So when that signaling is repeated, that's when it has its impact. So if you're always asking the male students to help the female students with the math, there's going to be a problem because what you're doing while you're trying to get help with the peer tutoring, for students who are struggling is signaling that the boys are better at math than the girls. If you compliment a non white student on their accent, if that happens even a couple of times, something like that, it can only happen a couple of times. And it sort of makes you as a person. And I've had this happen to me personally, where people often comment on how articulate I am or what my accent sounds like, or asking me where I'm from, because, you know, when you look at me, you're going to expect maybe a different accent to come out of my face, you're going to expect the Indian accent because I am of Indian origin.

Mina Bhagdev (13:01):

And so when I come out with this British accent, people kind of, I know that that curiosity is peaked. And I know that they're not trying to put me down in any way, shape or form, but if I could tell you the hundreds and hundreds of times that happens to me, it gets wearing. And it sends messages that a person like me shouldn't have this accent or a person like me shouldn't be so articulate or a person that looks like me shouldn't be able to communicate quite as effectively as I do. And those are all microaggressions. And often they're meant as compliments. Often, they're meant as like you're trying to show interest in who I am, but those kinds of things get really wearing for minority students. So just kind

of, as you have conversations, as you try and get to know who your students are, just be cognizant, because words are very, very powerful and we need to be intentional in what we say and how we say it.

Mark Royce (14:07):

You also said that people's brains are deeply rooted in culture, and that leads to our beliefs and approaches to even teaching as teachers and learning as students. Talk to me about that comment and what your thoughts are on that.

Mina Bhagdev (14:26):

So, our brains are deeply, deeply rooted in culture. So everything that we have learned, we have learned by messages that are in our surroundings. And so as a Indian, my brain is deeply rooted in the Indian culture and my belief systems are deeply rooted in the culture in which I was brought up. And part of that deep-rooted belief system is how I approach school. So as a person of Indian origin, I was told from the day I could speak that education is the most important thing that I will ever do. I have to be successful at school. I cannot fail at school because if I fail at school, my life will pan out to be successful. Also, Indian Indian culture is deeply rooted, or it was when I was growing up, was deeply rooted in this idea that intelligence is fixed.

Mina Bhagdev (15:45):

And so I grew up believing in this fixed intelligence idea, that Indian people are genetically smarter than people from other races. And so being smarter, if I failed at school then I am letting other Indians down, because I'm not upholding this idea that Indians are smarter. And that puts... That really for all minority Asian students, it's a lot of pressure to grow up with. You're holding up the banner for every other Asian person out there, or Indian person in my case, Indian person out there. And so to fail was literally not an option. If I did that, I let the family down, I let myself down, I let the family down and then I let all the other Indians down because Indians are smarter than everybody else.

Mark Royce (16:46):

Hmm. Wow. So in the context of your classroom, how does this understanding about these issues influence the way you teach?

Mina Bhagdev (16:58):

So my understanding of the fact that these stereotypes and these cultural beliefs, because I just gave you my Indian perspective, right. But there, are perspectives for every culture out there and also, the socioeconomics of it all matters. So as I am teaching, I really focus in on how my students may be perceiving themselves. Are they coming in to me with a fixed mindset? Do I need to teach them about growth mindset? And if I do, how do I, how do I reach this one kid and get this one kid to understand that that growth mindset applies to him or her as well as to everybody else the classroom, because if your culture is telling you that you, are either perceived to be less intelligent or that you are not going to be successful in school-- 'cause the kids do come in with these beliefs and we need to be cognizant of that.

Mina Bhagdev (18:11):

So how do I talk to, approach, reach this kid? Do I do it as a whole class lesson on fixed and growth mindset? Do I do it in individual conversation? And you have to really gauge that based on your classroom environment. I do teach about growth mindset because I wear this other psychology hat. I

think I can get away with it a little bit more in my chemistry classroom as well. 'Cause the kids know I teach psych. So I start talking about things like mindfulness in my chemistry class, I start talking about things like fixed mindset, growth mindset. I talk about culture in my classroom and they are very forgiving of that because I'm also the psychology teacher on campus. So it does give me a little bit more leeway, but I think there's nothing wrong with a teacher educating children about fixed and growth mindsets and how we tend to limit ourselves. If we believe that we have that fixed mindset and how we have to, if we can overcome challenges and get things wrong and not be afraid to make mistakes, we can learn more from our mistakes than we can from doing everything right, which is where the rich discourse for modeling really comes in. Because that-- if you can have kids take risks and engage in conversations where they may or may not be going in the right direction, the teacher can artfully steer that conversation or allow the kids to work that out for themselves that, "Oh yeah, it's not this it's more likely to be there. So maybe it could be this and this both because sometimes both explanations are correct." And for me, a true example that jumps to my mind right away is when we talk about density, before students know why different materials have different densities, it could be that there are more particles shoved into a smaller space, for the more dense material or it could be there's the same number of particles in that amount of space, but the particles themselves have different masses, but we leave both open.

Mina Bhagdev (20:41):

We don't know which one is right, but both are viable options. So, you know, just allowing students to explore through that, learning, to not be afraid of voicing their opinions or the ideas. By encouraging them to understand that it's okay to make mistakes and your mistakes are going to be where the true learning occurs.

Mark Royce (21:07):

You're obviously passionate about equity. Share with us a little bit about the work you're doing in educating others about equity, especially in the classroom. But, I know it goes beyond just the classroom for you.

Mina Bhagdev (21:24):

Yes, I started off with my equity work when I was working on my dissertation. I researched this idea of stereotype threat and how stereotype threat is basically what I just explained to you earlier, where a person who belongs to any group, it doesn't have to be a racial group. It could be gender group. It could be any group. So if I identify as an Indian girl and there's this stereotype surrounding Indians and I inadvertently do something that lets all of the Indians down, then that is stereotype threat by living up to that stereotype, usually it's a negative stereotype. So for example, one of the stereotypes out there is that Black people are not as intelligent as everybody else. And I feel uncomfortable saying that, but the stereotype exists. We have to acknowledge it. We have to voice it. Right? So with that stereotype, a Black student comes into the classroom and they are aware of that stereotype existing. And they respond to the teacher, whether with or to the classroom environment or they engage in the classroom and they are wrong. In their mind, the threat is that I've just confirmed that negative stereotype for all other Black students. That is a heavy burden. That's a heavy burden to bear. And so when we're sitting here as educators wondering why our Native American students or our Black students or Hispanic students are not engaging in class, that is a large part of it. They're not engaging because by engaging and being wrong, they are worried about confirming that stereotype. And that is an actual threat. And like any other threat situation, it activates the amygdala, which shuts down cognitive function.

Mina Bhagdev (23:44):

And so once the cognitive function is shut down, once the fight or flight response is activated, you're going to lose that student for at least 20 minutes. They're not going to engage in class. They literally cannot because they are undergoing this emotional fight or flight response. It's a physiological response. It's a cognitive response and it has a massive impact in class. So we need to be aware of that. And that's why strategies such as think pair share are great because what that does is it gives that student an opportunity to practice what they're going to say before they share it with the whole of the rest of the class. They're much more confident now that what they're going to say and how it's going to be received. They've practiced saying it. So little strategies like that, that allow the student to engage without that whole everybody's watching me. And if I say something wrong, now I'm going to be judged. My people are going to be judged. So,

Mark Royce (25:01):

Yeah. Share with me what you think your best tip for classroom teachers is. You know, practices in the classroom. What, what would be a teaching or a modeling tip that you would share with our listeners?

Mina Bhagdev (25:18):

So there are so many things that we as educators in terms of equity have to help our students overcome. Stereotype threat is just one of those things. And the best way to help our students overcome those things is relationships, relationships, relationships, if we can get to know our students, what are their value systems? How do they say their name? What are their interests? And let them know that you care about them individually as a person. Once we do that, what we start doing is building trust. And so once you've built trust with a student, then if you somehow say something that could be conceived as a microaggression, it won't be, because that student trusts you and they know that that's not what-- you don't mean that in a negative way. If you have established that relationship and they say something wrong and they are sort of in a stereotype group, they know that saying something wrong in your classroom, it's a safe space.

Mina Bhagdev (26:36):

And so if you have created the safe space where you have invested in each kid, and amongst kids invested time and building those relationships, building trust among students, but also between the students and yourselves, that safe space is a place where students can happily make mistakes. It's a safe space where students can explore their understanding without worrying about being judged. It's a safe space where students might even voice their concerns about things that they're experiencing outside of your classroom. And I think that should also be encouraged because we as educators are doing more than teaching our kids, just science. And I think that sometimes science teachers, particularly, and math teachers forget that. In social studies and language arts teachers are more likely to want to explore the world, right? In terms of literature, explore the world in terms of history.

Mina Bhagdev (27:49):

But we tend to stay very focused on content and we have to be real cognizant. And remember that we're teaching more than content. We're teaching young children who are still exploring who they are, who are exploring their own value systems, who are exploring the world around them. And it's okay, occasionally, to take a little time out and address, microaggressions or address, the murder of a Black person by a policeman or just in the local neighborhood. We recently had a hate crime in Chandler Unified. Address that. It shouldn't be left to social studies and language. We can address that too,

because these people are coming to us with needs. And if you've taken the time to build those relationships and you've provided that safe space, let them have that, have their voice heard in the classroom.

Mark Royce (28:56):

So tell us a little bit about this idea of the model minority, and your thoughts on, on it.

Mina Bhagdev (29:05):

Okay. So there is this myth called the model minority myth, and basically what the model minority myth is, is that Asians make up this "model minority" and the methods that they, aside from the other minorities, because they work hard, they pull themselves up by the bootstraps and they're very, very successful. And it's really a myth that was put out there to suggest that black and Hispanic minorities are where they are, because that's where they deserve to be. So it's not the education system or the environment that has caused the disparity between Asians and Hispanics. It's the fact that Asians work hard, Asians engage in school. Asians, Asians are the model. I mean, if you can do this, if they can do this, then surely everybody else can do this, right? And so, as I was saying earlier, as an Asian student in a classroom that idea that Asians are this model minority puts a stress on them.

Mina Bhagdev (30:30):

And so there is pressure from the family to perform there's pressure from the Asian community to perform and there's pressure from the teachers to perform and the real problem, especially for our highest performing, so think AP physics, calc students -- the AP Asian physics calc students, the biggest problem for them is that if for some reason they get a B in your class, this is seen as a complete failure. It is a massive level of stress that they face. And studies have shown that the highest rate of suicide among 18 to 22 year old youth is amongst the Asian student population. This is because our students who tend to be highly successful at the high school level go to college, and then they suddenly start getting B's. They judge themselves. There's pressure on them when they get home.

Mina Bhagdev (31:44):

We actually have had a student at my school, who used to go to my school, ended up committing suicide because he didn't know how to tell his parents that he was failing a class and he took his own life. And this impacts the whole community. It impacts the Asian community impacts the school community. It impacts the college student community. It is massive. And so I think it's really important for teachers of those higher level AP classes, to be aware that this myth exists, to be aware that these students are facing these pressures that are real pressures and that those pressures can directly impact their lives and do directly impact their lives. Depression and suicide is a thing that they will face if we don't start talking to them about, you know, it's okay at a higher level class to get a B. It's okay at a higher level class, if you get a C and if you go to college and you decide that, you know, science is not for you, because a lot of Asians are pushed into that science, into the STEM arena, by the community, by their parents, because that's where the high earning jobs with status are. So it's really hard as an Asian, to hear about that statistic, that these young children, these young people with so much potential that are, so that have got the whole world waiting for them, take their lives because we're not addressing the social emotional needs.

Mark Royce (33:43):

Do you have recommendations on how to speak into their lives, before that becomes an issue?

Mina Bhagdev (33:50):

I think just even having... to my mind, there's nothing wrong with having a warmup or a cool-down at the end of the lesson where you start by asking students what pressures they're facing. Those AP students they're taking five, six, seven AP classes. I don't even know how many they take, but I know that they work super hard every single day. And they put themselves under pressure for tests and things. So it could be, as you're approaching a test that you take some time out and say, Hey, what pressures are you facing? How many AP classes are you doing? How is this impacting your life? And is it really something that you need to do? I think just addressing it head on, as a whole class and letting the-- the students are surprisingly willing to engage. Now, I don't know if that's because they see me and I am an Asian person who's highly qualified and gone through all the schooling and obviously put myself under the same pressures as they are under, but they are willing to talk about it and they are willing to... They want somebody to hear them, I believe. Because parents are not their first stop when they want to talk about feeling school pressure. The parents are not where they want to go to. So anybody who's willing to listen, I think that they would be willing to listen.

Mark Royce (35:27):

Mm that's good. What other recommendations, insights would you share with our listeners about dealing with the issue of equity in your classroom and really helping to connect with the students of the minority?

Mina Bhagdev (35:50):

So, one of my biggest passions is for us to find a way to get more minority faces in front of our classroom. Ideally, I would like that to be by engaging with your school principal or your department heads and encouraging hiring more minority teachers. But the problem is that we are hiring more minority teachers than we ever have in the past, but the discrepancy between minority and white teachers at the moment, 80% of the educators in our nation are white. And I think it's something like 75% of those of women. So we've got mainly white women in the classroom. Now, I'm not saying that white women can not reach every student. I'm not saying that at all, but students need mirrors. Minority students need mirrors. They need to be able to see themselves reflected in front of the classroom.

Mina Bhagdev (37:06):

So if we can, if we can get more minority students in front of our students, then maybe they can have those discussions with the Asian teachers about how hard it is to be doing 10, 10 AP classes or to be, to be applying for Harvard or all of those pressures that our model minority students face. But also think about it from the perspective of our black and Hispanic teachers. When they see themselves reflected at the front of the classroom, they're more likely to buy into the classroom. So I think as educators, we need to be advocating for an increased diversity of teachers. Not only does that provide mirrors for our minority students, but it also provides windows for our white students. So the idea of the windows is that as a white student, if all you ever see are white teachers sitting in front of you, you only ever get your culture reinforced.

Mina Bhagdev (38:09):

It's just reinforcement of the white majority culture. But as soon as you get into classrooms and you have Black teachers and Hispanic teachers and Asian teachers and white teachers, now you've got lots of windows to look out into other cultures to start understanding other cultures, to start connecting with people in a positive way, to see these people from other cultures as professionals. And that will go

a long way towards helping overcome a lot of the inequities that we see in our classrooms. So I think we can be advocates for increasing teacher diversity. Now, as I said, we're hiring more and more minority teachers, but minority teachers are 25% more likely to leave the classroom than white teachers. Why is that? A large part of it, I believe is that minority teachers experience the same barriers that our minority students face. They face stereotype threat.

Mina Bhagdev (39:17):

They face microaggressions. They face a lack of opportunities for promotion. Um, so I think that we really need to find ways to keep our minority teachers in the classroom. And that might be just by providing a supportive environment, pulling them into your department and providing support, providing encouragement, providing opportunities for growth, just doing the same things for them, but adding that extra level of support and really avoiding those microaggressions as far as you can, will help to keep more minority teachers in the classroom, but we desperately need to increase teacher diversity.

Mark Royce (40:10):

Hmm. So Mina, do you have any kind of closing thoughts on what you would like our listeners to know?

Mina Bhagdev (40:18):

Just for teachers to remember that everything you do and say sends a message, whether it's implicit or whether it is explicit and to be really cognizant of that and to be very, very intentional, be very intentional with your words, be very intentional with your eye rolls, be very intentional with your sighs because those things that we throw away in the classroom, just because we as human beings, are exasperated or tired or exhausted, or don't want to explain something for the ninth time, those things, they send very powerful messages. And just to be really cognizant of that and to really address issues of microaggressions or discussions on stereotypes, just really be engaged in that process of finding equitable ways for your students to be participants in your classroom.

Mark Royce (41:26):

Mina, it's been really great talking with you. I really appreciate your insights. You shared some things that I hadn't fully thought about, or pondered, and I think you have a lot for us to consider. And I just want to thank you for taking the time out of your busy schedule to spend it with us on this episode. Thank you.

Mina Bhagdev (41:50):

Thank you, Mark. It's been my pleasure.