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Susan Jobe ([00:04](#)):

Welcome, to the G.U.I.D.E. for Life Podcast, exploring topics related to the personal competency skills that empower Arkansas students and teachers to thrive at home, school, on the job, and in the community.

Susan Jobe ([00:21](#)):

Welcome, to the G.U.I.D.E. for Life Podcast. I'm so excited about our guest that is with us today, Allison Dillard, who is an adjunct math professor at Irvine Valley College. She is also the author of a few books about math. And she hosts her own podcast, the Allison Loves Math Podcast. And so today we're just going to be talking about, how to help our kids and students value, love, and succeed in math. So welcome, Allison. So happy to have you.

Allison Dillard ([00:52](#)):

Oh, thank you, Susan. I'm so excited to be here.

Susan Jobe ([00:55](#)):

Okay. So math is something that I have struggled with my whole life. And when I came across your website and started learning more about what you do, I was just so intrigued. We always like to start the podcast here, having our guests just share a little bit about their journey in education. So would you mind sharing with us?

Allison Dillard ([01:16](#)):

Sure. I think, my journey in education, obviously it started when I was a kid and in school. And I think I grew up with two parents who loved and valued math. I think that had a really big influence on me. My next thing that I think was really impactful for me in terms of math was that I was diagnosed with chronic fatigue syndrome in high school. It's a lot like the long COVID stuff that unfortunately some people are doing dealing with today and I missed most of the last two years of my high school education. But the really positive thing that came out of that negative experience was, my math teacher and my principal had agreed that I could just take the final exam. And so I hadn't shown up to class, I hadn't done a lot of the homework and quizzes and stuff, but they said, whatever grade you can get on that, we'll give you that grade for the semester.

Allison Dillard ([02:05](#)):

And I realized, oh my gosh, there is so much that you can actually learn in a short amount of time if you really study hard and study efficiently. And so I think that really has affected my view on mathematics and what students are capable of learning even in difficult situations. And then in terms of everything after elementary and high school. I majored in math and English in college. I loved everything that I studied. So it was very hard to choose, but that's what I settled on. After that, I got a master's in math and eventually became a teacher at Irvine Valley College.

Allison Dillard ([02:40](#)):

Then a couple of years ago, I had some health problems. I had to take a year off of teaching to have surgery and chemotherapy and stuff. And that's when I wrote my first book, which is really all of the advice that I've given students over the years to help them figure out how to succeed in math. And then

everything that I'm doing today sort of started there. Started with that book and it led to the next one and the next one and eventually the podcast. And another one of those things where it kind of started out as a really difficult experience, but a lot of good things have ended up coming from it.

Susan Jobe ([03:11](#)):

Well, I love that. And wow, going through so many difficult times and still just pushing through, what resiliency. So, bravo and well done.

Allison Dillard ([03:23](#)):

Thank you.

Susan Jobe ([03:24](#)):

I'm really excited because growing up ... I mean, to share your resources with math teachers and with parents and with students today, because growing up, I struggled in math, and I don't really know ... I feel like I had some very good math teachers. I don't feel like I knew, and we talk about G.U.I.D.E. for Life, the skills that are in the G.U.I.D.E. for Life. And I don't feel like maybe I was confident enough to advocate for myself and to know even what questions to ask. And so I'm just very intrigued by your math experience, my math experience. But I do know that I have some intimidation around. I feel intimidated by math.

Susan Jobe ([04:08](#)):

And as a parent, as a classroom teacher, I was not the math girl. So it's very interesting to me that you were an English major and a math major, both. Because usually, we talk about right brain, left brain and people usually go one direction or the other. And I'm definitely the language arts girl. So that's so interesting to me. So let's talk a little bit about math anxiety. That's a term that you've used. Let's talk a little bit about that. What is it? Maybe what causes it? And how can we help our students work through math anxiety?

Allison Dillard ([04:45](#)):

Yes. Well, unfortunately, math anxiety is something that a lot of people are really familiar with. I know you said you're not very comfortable with math, or you have different feelings about math. And it's so common. I've met so many students over the years who have, or have had math anxiety. And I think on the emotional side, math anxiety is just feeling like you can't do math. Like, no matter what, even if you tried, even if you put in effort, it wouldn't do any good, you're still going to not do well in your test. You're still going to panic. You're still going to blank out. And then there's also actual physical symptoms of math anxiety. I have students who said they have like, their heart is racing and they feel like they can't breathe, they actually get sweaty and shaky. I remember in one of my very first classes that I taught, I had a older gentleman in the class and we thought he was having a heart attack during the class. And it ended up being a panic attack.

Allison Dillard ([05:42](#)):

But literally, the math anxiety can get so bad that you can think that you're having a heart attack during a test. So we were talking about ... So that's what math anxiety is, in terms of what we're feeling and physically what we're experiencing and the causes of math anxiety. I think the first thing I should say for

both educators and students and parents is that having math anxiety is not something that is set in stone. It's not like a part of your personality that is unchangeable. There are things that have caused it and therefore there are also things that you can do to change that. And so we found a lot of math anxiety and here I'm sort of quoting research from one of my podcast guests. Very early on in the podcast, I interviewed a math professor who has a PhD specifically in math anxiety. And one of the things that she was talking about was, what is the experience that you had that led to you having math anxiety?

Allison Dillard ([06:43](#)):

So for a lot of students, there was maybe a test, or I hate to blame teachers, but a lot of times it can be that one experience with one teacher who just really made you feel bad and embrace that belief that you're not a math person and that you'll never do that. So I think one of the things to think about, as far as causes go is, what were the experience or maybe who are the people that led you having this anxiety around math. And then, of course, acknowledging that math itself and school itself are very stressful. There's high stakes, writing all those exams that determines your college admissions and stuff like that, at least when you get into high school. And that certainly adds to it.

Susan Jobe ([07:24](#)):

So, we think about people, maybe people we've had experiences with. The pressure of maybe standardized testing performance. I think too, the difference in math and language arts is that if I can defend my opinion or my argument with something, I'm going to probably be okay if I have some evidence to support. But in math, there's one right answer.

Allison Dillard ([07:53](#)):

Yes. And we tend to talk it up to that as well. Because you're right, so you wrote an essay, although it's never perfect and we acknowledge that, right? It's very rare to write the perfect essay, but you can see all the positive aspects of your essay and then you see where you need to improve. It's not an all or nothing. And so often that's actually the same thing in math. You can get a whole lot of the question right but you just get a little bit ... But in math, unfortunately, everybody focuses on, oh, well, it's completely wrong. Rather than like, "You actually got 90% of it right, and you made a little mistake in there."

Susan Jobe ([08:24](#)):

Right. And that's, see I'm learning, I'm still learning. I'm like, "That's awesome." So what are some remedies for this math anxiety? And when I think about the G.U.I.D.E. for Life and some of the things that you and I have visited about today and previously, growth mindset kind of comes into play in that perseverance. So talk to us a little bit about how we can overcome some of this math anxiety and help our kids to do the same.

Allison Dillard ([08:52](#)):

Yes. So the growth mindset with math anxiety is one of the things that I've been spending a lot of time experimenting with. Because as soon as I remember, I had read Jo Boaler's book on Mathematical Mindsets and I was blown away. I was like, "Okay, this is the solution, we just explain to them what growth mindset is and it will be game-changer, it'll fix everything." And what I found was that introducing a growth mindset to a student, like one time, especially students, say who has math anxiety, isn't

necessarily enough to fix that math anxiety. And so I think the mindset stuff I found is something that is helpful to integrate into math class consistently. And actively, so that way we're not just telling students, but we're actually maybe asking them to write things down, answer questions, reflect on their math experiences and how they're approaching math.

Allison Dillard ([09:45](#)):

And just ultimately what I've done is, embed it into math class. So everything that we're doing with growth mindset, if you'll notice teachers might find sometimes that students can have a growth mindset, really when it comes to all other subjects. We know when it comes to writing English papers, you have to practice in order to improve your writing skills. We know that when it comes to sports, obviously you have to practice in order to improve in sports. But then we forget about that when it comes to math and we think, "Oh, I'm just not a math person. And there's nothing that I can do about it." So really that growth mindset can just come back to reminding students over and over and over again, that math really is just a skill, like those other skills that they've already developed. And if you approach it in the same way that you approach those other skills, you'll improve. And you won't necessarily get perfect, no one's going to jump to perfect overnight, but you'll improve with practice.

Susan Jobe ([10:41](#)):

Right. And I think that that mindset and just believing that you can is so important.

Allison Dillard ([10:47](#)):

It's so important.

Susan Jobe ([10:49](#)):

Just finding ways that we can breed that belief into our kids. And even as a parent, trying to help my kids with math was very overwhelming to me because I did not feel equipped to do it.

Allison Dillard ([11:02](#)):

Mm-hmm (affirmative).

Susan Jobe ([11:06](#)):

And so, how do we just change this narrative around math with our parents and with students?

Allison Dillard ([11:12](#)):

Yeah. So when the pandemic started, I actually did a workshop with parents because so many parents were thrown into being their kids' math teachers for the first time, but it was like a nightmare for so many parents. And there were a couple of things that were really helpful, I think for parents struggling to help their kids with math. And the very first thing is small, but it's just sort of cutting the negative comments about math. Sometimes it's hard to envision yourself maybe being really positive and encouraging and helping them figure out math if you have a really bad relationship with math yourself.

Allison Dillard ([11:49](#)):

But if you can eliminate all of the negative comments about math, about how math sucks and it's terrible. And I never use it in real life. And don't worry, I hate math too. I never figured out math and it's

okay, you're bad at math like me. All of those things, which a lot of times come from a good place because we're trying to sympathize with our kids. We're trying to make them not feel bad about it. But a lot of what that can do is just, it kind of gives them permission to give up. Because if you're just bad at it, if mom and dad are just bad at it, and if there's no point in doing it, then really what's the point in trying. So, if you can just work that first step, is just to eliminate those negative comments that can actually make a huge difference.

Susan Jobe ([12:29](#)):

You know, I'm even thinking about the memes that we see on social media about math. And it's like, it makes it okay. We're just going to write math off, I can't do math. It is, it's a cultural thing. And so we need to change that narrative and really, I guess, just speak more positively about it, or it's a great opportunity for sure to model that growth mindset and positive thinking for your children, even when you're struggling. So what about math being unrelatable?

Allison Dillard ([13:10](#)):

I think that's something that parents can help with a lot. Because whether we like it or not, we actually use math in real life a lot. I mean, if we have a job where we're trading in hours, time, for money in both time and everything to do with finances, it's all math. Anytime you're trying to save for something, whether it's a car or a house that comes back to math. And if you're really struggling to do that, that also comes back to math. Balancing all of the budgets and trying to meet our goals as adults, unfortunately, whether we like it or not, that all does come back to math.

Allison Dillard ([13:49](#)):

And so I think that sharing the importance of that is something that parents can really do. Of course, what is really tricky is that those real-life uses of math aren't always presented in the classroom. And I found that as a math teacher, I've taught college algebra many times and I've tried so hard to integrate the financial aspects of math into our classroom, but it's not there in those resources that I'm given as a teacher. And so it ended up being very sort of hit or miss on when I was able to actually integrate it. So I think, parents, that's something that you can really help teachers out by showing our kids where we use it, and where it would be helpful.

Susan Jobe ([14:30](#)):

So you talk about an Eleanor Roosevelt quote, about shifting our perception on challenges. Do you want to share that with us?

Allison Dillard ([14:39](#)):

Sure. It's one of my favorite quotes and it's, "Do the thing that you think you cannot do." And for me, I just love it because, I think that just encapsulates math. Even if you can't get excited about the math itself, especially if you're a student who can start off with math anxiety and figure out how to overcome it and succeed in math and become confident in math, essentially you're doing the thing that you think you cannot do. And if you can learn how to do things that you think you can't do, you can literally do anything. Like the sky is the limit, right? There's no limits on what career you can have, what problems you can solve, what challenges you can take on. And so, because math is that challenge for so many

students in school, I feel like it's just this opportunity that can be really empowering if you can teach students how to overcome things that are difficult.

Susan Jobe ([15:31](#)):

Yeah. And I'm going to go back to growth mindset a little bit because we do want our kids to be empowered and to feel comfortable or even be willing to just take a risk and be willing to maybe fail. Right?

Allison Dillard ([15:46](#)):

Yes.

Susan Jobe ([15:47](#)):

A lot of times we learn the most through failure. And so why do you think a safe, supportive learning environment is so important if we're going to encourage our kids to be risk-takers?

Allison Dillard ([16:00](#)):

Right. I think that has to do with changing a little bit of our culture of math class. Because unfortunately the way that math class is graded, we have standards that we have to teach and we need to check whether or not the students know them. And so ultimately our grade in math class comes down to not making mistakes on tests. Right?

Susan Jobe ([16:21](#)):

Right.

Allison Dillard ([16:22](#)):

And so that is a hurdle for teachers and for students. But I think, especially for teachers, if you can then teach students that even though we're trying not to make mistakes on exams, class, and homework, and all those practice tests, that's our time where we make mistakes. And mistakes are really important because that's how we learn. You figure out what the mistake is, you learn from it, and you don't make it next time. And that's called progress. And so setting up a classroom environment where students feel, I guess comfortable acknowledging that they've made mistakes and that it's not a bad thing that it's just part of the process, that can help a lot. And it can also help towards that math anxiety because then they're not beating themselves up every step of the journey, leading up to the test. And just a little teacher tip, I guess, something that I found, because I've really struggled with this actually, we might, like in our hearts we want our students to feel comfortable in class, but then what we actually see in the classroom might be a little bit different.

Allison Dillard ([17:19](#)):

And one of the things that helped me a lot was when I changed to how students submitted their answers to me and when I made it anonymous. Now, I teach on zoom and so they can just send me direct messages in the chat for what their answers were. But when I was in the classroom, I used a tool called Socrative. And so they could log in on their phones, I guess you'd have to allow phones. And they could just input their answers, and then I could see it up on my desk, where nobody else could. And students just became so much more willing to share their answers and ask questions when they were able to do it

anonymously. And then from there that led to everybody just feeling more comfortable having actual conversations about mistakes.

Susan Jobe ([17:59](#)):

Yeah. And I know that in our previous conversation, you talked a lot about having conversations about math-

Allison Dillard ([18:07](#)):

Yes, yes.

Susan Jobe ([18:09](#)):

... And getting to know your students. And I know that you've created this awesome journal, The Love Math Journal. And do you want to share a little bit about that with us?

Allison Dillard ([18:19](#)):

Yes. Yeah. So one of the things that I had mentioned was, I found that when teaching growth mindset can be a challenge. Especially if you consider the fact that it's helpful to teach it consistently, to make sure that it's always related to math, to make it active. So that way students are actually doing the thinking and answering questions themselves. And I found as a teacher that it ended up adding a lot of extra prep and research and trying to find different ways to do that and to integrate that into class.

Allison Dillard ([18:48](#)):

And so, one of my podcast guests, her name is Nicole Thomson, and she runs a class called The Fulfilled Classroom. And so she does a lot of work on gratitude and mindset. And we decided to create a journal together that essentially did all of that work for teachers. So it has all of the growth mindset quotes in it, and basically a daily question or prompt about math that you can use to kick off math class. So that way you can just start off with that growth mindset, bringing everybody into a positive and safe environment. Having a conversation where we think about growth mindset and math, or how we're approaching math and just reflect on all of those things. And so the goal with that particular resource was to help teachers make it easy to implement consistently.

Susan Jobe ([19:37](#)):

Yeah. I love that because you're creating opportunities for conversation in the math classroom. And also I think, as a teacher, it helps us to know what's intimidating our students or where they're struggling. And I think that this is just an awesome tool to get to know your students specifically in the math arena. And building those relationships and building that trust is always going to create an environment where students feel safer to take those risks. Right?

Allison Dillard ([20:13](#)):

Big risk.

Susan Jobe ([20:13](#)):

And so I just ... I love that tool and I think it would be great for anyone to check out and we're definitely going to link that resource in our show notes for this podcast. So how do you think that powering



through in math, that perseverance to keep trying, even when you're making a mistake, even when it's hard, that grit, how does that help us to be successful in our everyday lives?

Allison Dillard ([20:42](#)):

I think that whatever your goal is and I love that part of your guide framework that you use, is helping students to understand what their long-term goals are and find their path for that. And I think that, especially when students set ambitious goals for themselves, which they certainly should, we should encourage them to do that, there're going to be challenges along the way. Whether it's an academic challenge or a life challenge, there's so many different types of things that we might end up facing. Learning how to power through, will get you through that. Oftentimes that is the determining factor between where you are and where you want to be. And so I guess, because math is that challenge for so many students, it can just be helpful to have students recognize that, as they're going through math. It adds an additional benefit to the class, in addition to just the math itself.

Susan Jobe ([21:42](#)):

Right.

Allison Dillard ([21:42](#)):

Don't get me wrong. I love math, also. I do actually love the math, but it is part of this journey of figuring out how to do things that are difficult. I love that aspect of math as well.

Susan Jobe ([21:53](#)):

Right. Well, so what are some practical strategies besides maybe, The Love Math Journal, that you can share with the educators, just to ease this math anxiety and help our kids to feel empowered.

Allison Dillard ([22:09](#)):

One tip would be to have a growth mindset about teaching growth mindset. Because just like the way we prepare lessons, the very first time you ever gave a math lesson ever, it probably wasn't the very best. And we probably had some math lessons over the years, we're like, "Ah, I could have done that better." I know I have at least. And I think teaching growth mindset in the classroom is very similar. You don't necessarily introduce it to the class, or start a discussion, or have an assignment about it. And it's the perfect one. And it works every single time. It is a skill that you develop, just like teaching math. And so I think, keeping that in mind can be helpful. And I think it's also part of embracing that position as a role model for your students. If you're having a growth mindset about learning how to do something new, that can teach them how to do that as well.

Allison Dillard ([23:08](#)):

And I guess it doesn't have to be necessarily about teaching growth mindset. It could be about anything. One of the things that's been helpful for me, is sharing my journey about learning how to write books or learning how to start a podcast. And those things both had, my goodness, there's a steep learning curve on both of those. And it was really hard and it was really a challenge. And all of those things that I tell my students about, just have grit, keep at it when it gets tough. If you're not getting the results that you want, then change up what you're doing. All of those things applied to what I'm learning outside. And so sharing those journeys and helping them to see how it relates to math can be helpful.



Susan Jobe ([23:48](#)):

Yeah. And my mind is just going to the power of collaboration too among teachers. You were talking about growth mindset. And if we're bringing data to the table, and my kids succeeded on a skill and yours didn't or vice versa, just being able to say, "Hey, what did you do differently, that your kids succeeded on this, and show me what you did, or come teach in my classroom." And just being willing to be vulnerable and have those conversations so that all of our kids can succeed. I'm just a huge fan of collaboration with other teachers as well.

Allison Dillard ([24:28](#)):

Oh, I love that too. And even on the role modeling aspect of it, I think for, if the kids can see you, being willing to make mistakes, being willing to get feedback, to try things that maybe other teachers are doing. They're seeing you do that and then they do pick up on that. A lot of times they pick up more on what we do rather than even just what we say. Or at least they can see that disconnect as well.

Susan Jobe ([24:54](#)):

For sure. For sure. So leading by example and-

Allison Dillard ([24:56](#)):

Exactly.

Susan Jobe ([24:57](#)):

... What we're letting them see us do, what we're wanting them to do. Allison, this has been such a great conversation. Is there anything else you'd like to share with us about loving math before we close out today?

Allison Dillard ([25:11](#)):

I think the main thing, whether you're a teacher or a parent, is just to remind your kids that math is just a skill. Take it off that pedestal and help them to remember that you'll improve with practice.

Susan Jobe ([25:25](#)):

Awesome. Practice makes perfect.

Allison Dillard ([25:27](#)):

Practice makes improvement too. Right?

Susan Jobe ([25:30](#)):

Improvement.

Allison Dillard ([25:30](#)):

[crosstalk 00:25:30]. Maybe it's what kids are waiting for.

Susan Jobe ([25:33](#)):

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Maybe that's what we need to stop saying, that practice makes perfect. Practice makes improvement. I like it.

Allison Dillard ([25:40](#)):

Cool.

Susan Jobe ([25:40](#)):

Allison, thank you so much for joining us today and we'll see you next time on the G.U.I.D.E. for Life podcast.

Allison Dillard ([25:45](#)):

All right. Thank you so much, Susan. This was wonderful.