



*Mentoring Tomorrow's Leaders
Booklet 1*

Transcription of a presentation titled



“Gluten-Free Rocket Science”

**Discovering your Professional Passion
in the Midst of Adversity**



by
Dr. Ashley Ramirez

Presented at the UAH Propulsion Research Center
The University of Alabama in Huntsville
Wednesday, November 29, 2017

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“Gluten-Free Rocket Science”

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November 29, 2017

Propulsion Research Center

The University of Alabama in Huntsville

First of all, Dr. Frederick, thank you very much for the invitation. I have been out of the academic world now for about six years and this has been my first time back in the setting and I didn't realize how much I miss it. Thank you for the opportunity to come back and see this side.

A little bit about my background--as Dr. Frederick mentioned, I graduated with my doctorate in chemistry from Duke in 2011. My focus was in polymer chemistry and self-healing materials. So I knew a little bit about the propulsion side of things--worked a lot with polybutadiene--so I know a little bit, but not as much as you guys.

When I finished up my degree I was very excited to land a job down here on the arsenal. And I was going to be working on the propulsion side, so I definitely had a lot of catching up to do once I got into that world. But [I would be] working with polybutadiene materials and trying to see if I could do some problem solving for them there.

2011 was right in the middle of sequestration. So, my husband, he left his job in North Carolina. We sold our house up there and we moved down here. On Friday, when I was supposed to start work on Monday, I got the phone call that the grant had been canceled because of sequestration. So basically, they no longer had a job for the project they were bringing me on for. You can imagine the position that we were in.

The first thing that I want to talk to you guys about today is fear--because you are going to experience fear in multiple stages of your life. You are going to experience it sometimes weekly, sometimes daily, sometimes yearly. And fear isn't necessarily a bad thing. It's how you

funnel that fear is what determines the outcome. So fear is either fight or flight.

So you can fear everything and run. We were in that position. We just moved down here. We were trying to settle in to see what we wanted to do. Our “running” situation would be to go back to North Carolina. That’s our safe zone. That’s where we lived. My husband could get a job. I could definitely get a job up there in that area and we could settle in and resume our normal life.

Or you can face everything and rise. So here we are, a young couple recently married in a new city that we were excited to be living in. And we chose to do the latter.

***When you are approached with fear, you can run or
you can rise to the situation.***

We decided to stay. My husband got a job--not necessarily in his ideal field, but something that at least provided us an income for a little while. And I was still trying to figure out what I was going to do in the area. Well, like Dr. Fredrick, I have celiac disease, and I cannot consume gluten. It makes me really sick. And when we first moved down here, there were not a lot of options for us in the dining world. We would go out to eat and I would get sick. People would look at me like I am crazy. Here we are in the land of fried food and sweets. So what are we supposed to do if you cannot have regular flour?

I, at that point, decided I was going stir crazy. You know what it is like. You just finished your Ph.D. You are used to working a hundred hours per week--and that’s your norm. And here I am with nothing. And I think I was driving my husband crazy in the process because I was cleaning the house. I was doing everything. I was pestering him at work. “Hey, could we go do this?” “I need a project” “I need something to work on.” “Can I analyze this?” “What can we do with our life?”

So I started baking. I’ve always had a love for baking. And there’s

a lot of chemistry within it. I have always loved nutrition and the food science side of things. That's kind of been a hobby for me along the way. At the time, I decided to put some gluten-free products in the local farmer's market. You guys probably know the Green Street Market downtown. It's a fun venue. So it's something I did to occupy my time.

We said, well, it's just for fun and it will keep me busy. It will keep me out of my husband's hair. We will see what comes of it. There's not a lot of education about food allergies down here, so it's one of two situations. First of all, it isn't a need--is one option. Or just, two, nobody has really just filled that void yet. We quickly found out that it's the latter. There is a large population of people here with food allergies and food intolerances. And there just really wasn't anybody who had crossed that bridge yet.

So we started out small at the Farmer's Market. And it came time to decide--a lot of people were asking for a storefront--talk about fear again. We started with something small with little to no investment. Okay, are we ready to take the next step? So we decided, we will give it a chance.

We got a little space down on South Parkway that was very low overhead--essentially, very low rent. And we knew what we needed to do each month in order to just make ends meet. So we took that first step.

Then, that started to do really well and we were posed with the situation of--I needed help. I don't have a business degree. I don't have a business background. I love to bake and I love to help people. I love the customer service side of things. I love the people interaction. So we came to a point where we needed to make a choice. Is this something that is just for fun? Or is this something that is going to become a career for us?

My husband was pretty unhappy in his job. He had just taken something that had filled the void for the time and provide some income. So he decided to go ahead and make the leap. He has his MBA in Finance. And so he came over and started running the business side of things. He got me straightened out because I really had no idea what I was doing on the business side of things. He came over and joined the business.

And now, here we are--we were leaving a life in North Carolina

where my husband was a CFO of a bank and I was coming down--transferring down here and taking a job on the arsenal and making decent money. To now, we have zero income. Talk about fear again! You really have to come down to your roots and figure out what is most important to you. And that is something that I want to touch on again today too, is that you really have to pursue your passion.

People always ask me, “You have a doctorate in Chemistry. What in the world are you doing running a restaurant and bakery, and you bake. What are you doing?” What I like to argue is that I use my degree every day. Because my degree was not specifically self-healing polymers. My degree was the life lessons I learned along the way.

***There are three things that I learned in
graduate school.***

First of all discipline. Discipline is making the choice for what you want to do now compared with what you want to do most. Short term versus long-term reward. Discipline is, in your undergraduate days, choosing to go out for the party or staying at home to study for the test. Discipline in your graduate school days is everything from--a specific instance that I remember from my graduate school days is working on a publication. We had gotten a really good result, and we were in the process of writing up a publication for *Polymer Chemistry*. It is a good journal, but a mid-level journal for publication purposes.

My PI was very persistent with me. He said, “No, we are going to do more to pursue this further.” Don’t take the short-term reward of this publication, but keep pursuing this. We worked it further and worked it further and ended up with a publication in *Nature Chemistry*.¹ A pretty high-tier publication. If we would have just had settled, that latter finding would

¹ Ashley L. Black Ramirez, Zachary S. Kean, Joshua A. Orlicki, Mangesh Champhekar, Sarah M. Elsagr, Wendy E. Krause and Stephen L. Craig, “Mechanochemical strengthening of a synthetic polymer in response to typically destructive shear forces,” *Nature Chemistry* 5, 757–761 doi:10.1038/nchem.1720. (2013).doi:10.1038/nchem.1720.

not have the *Nature Chemistry* paper, because it was the whole story. It was the whole picture. It is the discipline not to choose the short-term reward for what you are looking for in the long-term.

As you are finishing up your degree, when you are looking for a job, when you are first coming out of grad school, anything looks beautiful. You are like--Oh my gosh, I going to have a whole lot of money. I can actually have a little bit of spending cash. But don't settle. You know what you are capable of. You know what your passion is. Don't settle for a job that is just kind of in an off-field and because it has a pretty salary. You are not going to be happy in the long run if you are not doing what your heart really wants you to do. So discipline is the first thing that I learned in my graduate school career. And that comes up every day in our life right now.

Second, persistence. You are going to get knocked down in every avenue of your life so many times. And you have to get back up. How many times have you done that experiment and it failed? How many times have you set up all night and tried to come up with the right solution and you have that "Ah ha," moment, "I've got it," and then you try it and it wasn't right. You guys laugh, but it's true. Persistence, I think is the biggest thing you will learn during your degree that will carry through to the rest of your life. You have to just keep going. And that drive is not something that many people have. It is a skill that you will learn here that will benefit you greatly.

And the last thing that I definitely learned to cherish and value during my graduate school career, that Dr. Frederick has already mentioned, are relationships--relying on other people. You are only as strong as your team is.

You bring in other people and other people's ideas. In life, you have to stand on the shoulders of giants. That's how you reach the top. Now, in our business, I am nothing without my team. My staff is amazing and they are what keeps us going every single day. And if I did not have them, we would have not gotten to where we are right now.

If you just focus on yourself during your graduate school career, you will not get to where you could have if you work with your lab mates, your teammates.

So three things from your time here: first of all, discipline--short-term versus long-term, second of all persistence--you have to keep going, and third of all, relationships--build the people that are closest to you up. Have them help you. You help them. And that's how you will get to where you want to be.

I called this "Gluten-Free Rocket Science," because I came here to do rocket science and I think I am. It's a daily endeavor. Running a business is not a small feat. There are days that I do want to quit--that I don't want to get up again and face another day. But, it's that discipline--that persistence the keeps us going.

I charge you guys to follow your dream, live your passion, and don't forget the tools that you've learned along the way.

Postscript:

Dr. Robert Frederick: You have some special guests with you today.

Dr. Ashley Ramirez: I have my dad, my mom, and my grandmother who is visiting for the holidays from Maryland. And then the littlest one is our son. This is Raleigh named after Raleigh, North Carolina, where my husband and I were based out of. He is eighteen months old, and he has added a whole new level of fun to life in this last year and a half.

Dr. Robert Frederick: Well, I am so sure that you [her family] are so proud of Ashley and her husband and what they have been doing.

Dr. Ashley Ramirez's Grandmother: I am speaking as her grandmother. Ashley has been working very, very hard. It's so funny, when she was coming home from college, her passion was making an apple pie for her grandpa who left us seven years ago. And he would be so proud to know that now. Ashley has added a recipe for his favorite apple pie to her menu. And she is very much a part of my life and I love her very dearly.

Dr. Robert Frederick: I've been to a lot of commencements in the past twenty-six years, and that's one of the best speeches I have ever heard. We ought to have you at UAH Commencement sometime. That will be in the future. I cannot give you an honorary degree, but what I have for you here is--we have made you an "Honorary Rocket Scientist" of the UAH Propulsion Research Center. Thank you so much!



From left: Dr. Robert Frederick, Dr. Ashley Ramirez, Raleigh Ramirez, Donna Black, Russell Black, and Grace Millet.



Dr. Robert Frederick, Director of UAH Propulsion Research Center, presents Dr. Ashley Ramirez, “Honorary Rocket Scientist,” Award

About “Gluten-Free Rocket Science”

The UAH Propulsion Research Center hosts monthly luncheons that serve to mentor our students in technical and leadership skills important to success in their careers. The purpose of these *Mentoring Tomorrow's Leaders* booklets is to capture some of the valuable life lessons that have been included in these talks.

In “*Gluten-Free Rocket Science*,” Dr. Ashley Ramirez describes how she discovered her professional passion in the midst of professional adversity. She helps us see how we can have a positive response to our fears by transforming the skills and disciplines developed in our education into new professional endeavors. The message speaks to all who find themselves pressured to change their planned career paths by external events.

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Background of the Speaker

Mason Dixon Bakery & Bistro was founded by Dr. Ashley and her husband, Taylor. Dr. Ramirez graduated with a PhD in Chemistry from Duke University and, after receiving her degree, she and her husband moved to Huntsville, AL for Dr. Ramirez to accept a position at Redstone Arsenal. When the Ramirezes arrived in Huntsville, however, Dr. Ramirez’s position was postponed due to sequestration. During this “serendipitous delay,” the Ramirezes pursued their dream of opening a gluten-free bakery in Huntsville, Alabama. This past October the Ramirezes opened a second Mason Dixon Bakery & Bistro in Homewood, Alabama.

