

The Sound Journey of a Future Acoustician

Brooke Dougherty

“C4...A#4...B3...D5” I replied as my 9th-grade choir teacher at Coronado High School in Henderson, Nevada, played each note on his old and rickety piano. The entire class went from stunned silence to an eruption of applause as I could only bring myself to laughter, realizing that I have finally *learned* perfect pitch. It was at this moment that not only my love for music but my gratitude for sound in general truly held a place in my heart.

Although neither of my parents had musical backgrounds, my brother, sister, and I (**Figure 1**) were always surrounded with sound. Each of us loved having different instruments in our hands, from guitars to drums to even didgeridoos. The tones and melodies we would play for our family and friends always fascinated us and made us grateful that sound was such a staple in our daily lives. It was our shared dream as triplets growing up in Las Vegas, Nevada, to be in a band together. I especially wanted to bring this vision to fruition, but my hearing wasn't as great as my siblings and I didn't know anything about the technicalities of sound. But, I did not let this little hurdle get in my way.

It was through rigorous training when I finally learned to jump the hurdle. Just a few months after my 12th birthday, my dad and I drove to Trabuco Canyon, California, where we met my very first vocal coach. For three days, my coach began introducing me to the enchanting world of pitch, vocal texture, and music theory and enlightening me about acoustics, sound manipulation, and musical production. Upon accepting our proposal for virtual lessons via Skype, my dad and I headed back home to Las Vegas. The next time I saw my vocal coach again was about a week later, this time over my computer screen.

This is when I had my first timed ear test. My coach played 12 random dyads, to which he told me to locate the octaves



Figure 1. The author and her siblings: (left to right) Brooke, Ross, and Morgan Dougherty.

to which each note belonged and their interval distance from one another, as well as to vocalize each note to its exact pitch. It took me 6 minutes 25 seconds and a lot of help, but I was able to do it. This ear test was followed by memorization drills for the circle of fifths (and fourths), note intervals, arpeggios, scales, and modes. After that came the application of all of these drills through intense vocal and pitch discernment exercises.

Every lesson from then on followed this kind of routine. Before I knew it, three years had gone by, and I had a four-and-a-half octave vocal range (C#3 to G#7), and hundreds of hours of ear tests and music theory knowledge under my belt. Hearing notes became almost effortless for me. I was able to identify 12 three- and four-note chords in as little as 56 seconds (which was my coach's studio record!) Not only did notes but many other sounds as well became clearer for me. I was able to pay better attention to what I heard day-to-day as well as to how my surroundings affected how these sounds entered my ears. I knew I was definitely onto something and that I should continue harnessing what I had learned.

Although pitch made its way to the forefront of my acoustical journey, a related concept was not made as

well-known to me until somewhat recently, frequency. The importance of frequency came into view about a year ago when I really began to notice my brother (who has low-functioning autism) watching loops of YouTube videos on his iPad in the G major frequency. He would skip around a short list of videos, looping bits and pieces of them over and over, lowering his face to the screen and staring with utmost intent as he flapped his arms wildly. He would do this every day for hours at a time. Although quite perplexing and disheartening to watch, his response to these videos intrigued me. *What could it be about the sound patterns in the G major frequency, over other sound frequencies, that my brother liked so much? How does frequency really affect our hearing? What can we do to learn more about frequency, and how can it be used for good?* These kinds of questions continue to fill my mind to this day as I dig deeper into the hidden world of sound frequency.

Back in January 2021, I was struck with the idea to create some sort of resource for sound concepts, music theory, and perfect pitch that could be easily learned by anyone who wanted to learn it. I knew that these were merely skills that could be picked up, not talents only a lucky few were born with. I learned a lot of musical and acoustical content in the three years I was trained, but I knew I could not only condense this knowledge down but also put my own spin on it so that anyone would be able to catch on in as little as weeks. And that's how Perfect Pitch Fluency (see perfectpitchfluency.com) came to be. Launched at the end of March 2021, this website aims to provide comprehensive, yet digestible, resources for people to master perfect pitch quickly and increase their understanding on related concepts in the realms of frequency, music theory, and other aspects of sound. It is completely free of charge to access and is continuously expanding in development. Instagram (see [instagram.com/perfectpitchfluency](https://www.instagram.com/perfectpitchfluency)) and Facebook (see [facebook.com/perfectpitchfluency](https://www.facebook.com/perfectpitchfluency)) pages have been created and filled with insightful content, and a monthly newsletter and series of seasonal seminars are in the works (as of July 2021).

Looking back from when I started truly learning about the world of sound almost six years ago to where I am today, I couldn't be more proud of how I've been able

to expand my perspective on sound as I know it. But I do understand that so much more can be learned. I am elated to see where else my sound journey will take me, and I look forward to the excitement of pursuing acoustical endeavors beyond my high-school career.

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