

Evolution of Everyday Humans into Ideal Astronauts: A Glance into the World of Analog Missions

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A Space Research Project is Born

What if I told you that you are not good enough? You do not have what it takes. As you move through your career, you will never be successful. Do not apply for that position because you do not have the right education or experience to do that. You will never make a difference. You are not suited for this level; trust me, I am doing you a favor.

These are all words that bosses, instructors, and peers have spoken to me at different points in my career. I find myself recently thinking, where would I be right now if I had listened to those words? What if I had simply taken in those words, given them power over me, and never pursued anything greater? I can think of a different reality that I can see plainly and clearly. I never would have found myself in the space industry, and certainly never would have applied to be an analog astronaut. Somewhere amongst my DNA, maybe we can call it the stardust, I was designed to question the status quo. I do not take it like it is. I question everything.

I was not supposed to live. I have had plenty of prayers gone unanswered. I did not get those jobs. My heart has been broken. I have lost. I have been assaulted. I have been taken advantage of. I have experienced abuse and been belittled. I have been turned away and told I was nothing. Each one of these statements is packed with stories of things I have experienced that have shaped who I became today. Those things are not ME. They are things that happened TO me that became superpowers through my metamorphosis.

I have experienced rejection and countless hurdles in pursuing higher education, in careers and in relationships. I am not alone. I am one face in the crowd of many. At each of these junctures in my life I just kept going. I have always felt driven and ambitious to keep pushing myself. It is not something I have simply chosen, but I am organically made just the way I am. I used each situation as a stepping-stone towards the next. One foot in front of the other. For the longest time, I even thought I was odd. That something, somehow must be wrong with me. There were times when the ambition would even be too much and I would pray, beg, and plead for it to be taken away just so I could accept the cards dealt to me in life. I would ask "Why do I have to want this so much?" It was painful to desire things that were always so out of reach.

Then through circumstances aligned by the universe, by God, I discovered SpaceKind. Learning a little about it sounded exciting and terrifying, but like so many other adventures before ... I leaped. Little by little, session by session, I felt I had unlocked some secret door to my people. Where have they been all my life? Finally, I had found a group of like-minded individuals who were just like me. What is SpaceKind? This non-traditional learning course invites you to open your heart, define your dreams, and share your life

vision. Throughout the course you use Loretta Whiteside's book, *The New Right Stuff* as your guide as you begin sharing experiences and completing exercises that help you to navigate your own hero's journey and come out the other end ready to make your unique contribution to the cosmos. By participating in this cohort, you join an intimate community of people not only ready to fulfill what they came to Earth to do, but also a unique circle of support and friendship. Loretta's brainchild began as a leadership training program for Virgin Galactic employees and others who desired to develop "the new right stuff" (i.e., vulnerability and authenticity rather than perfection and repression). She knew that her mission on this Earth was to launch SpaceKind and to set a new precedent that will continue to have ripple effects for generations. As a graduate student at Cal-Tech she was, by definition, on her way. Loretta knew that even achieving those things was not big enough. Sure, you can go to college, get that degree, become the astronaut, go into orbit, walk amongst the stars. But then what? Ask yourself, if you passed away today, other than your relationships and Earthly possessions, what would you leave behind? In all that achievement, and in all that recognition, did you fulfill your mission? That uniquely designed mission that was etched out just for you. Did you ever even bother to discover what your mission was? Did you leave a legacy that inspires others? Does your death leave this planet and humanity in a better place than you found it?

During my first SpaceKind cohort, I witnessed stories upon stories so eerily similar in theme even if not in detail. Suddenly my universe felt so much more intimate yet widened to horizons that I had never envisioned for myself. How is this possible? How can these many talented, fantastic, caring, genuine people be so connected to the same worldly woes that plague me? But there is something unique, even magical, about "space people." It is almost as if there is something within us that maybe others have not yet discovered.

Instant curiosity rattled my mind with endless thoughts, questions, wanderings, you name it. I wrote notes in the margins and in my notebooks like a literary madman. Throughout the course, I was challenged by my peers to apply for an analog astronaut mission. Knowing the requirements and competitiveness, I doubted I would be accepted. I began researching the different analog sites, and with each one I became more and more discouraged by the listed requirements and endless list of boxes they expected the applicants to check. Once again, something I have wanted my whole was completely outside my reach.

I mulled it over for a time, discussed it with my closest space friend, and was challenged more by my SpaceKind peers, so I decided to make the jump. HI-SEAS (Hawaii Space Exploration Analog and Simulation), here I come. I applied feeling proud that I had, but fully accepting that it would end there. I told myself to be prepared for the rejection letter and to try not to think about it. Deep down I did think about it. I daydreamed because who would not? I never, even in my wildest dreams, thought this was a possibility. Upon receiving that acceptance letter, seeing the black and white letters across the screen, I realized that my perseverance had paid off. The unexpected had happened. The universe,

somehow, had listened. Other analog astronauts I knew who had completed their missions already shared their stories of rejection and fears of rejection, how hurdle after hurdle, redirection, etc. had ultimately guided them right where they were called to be in the time that was theirs.

In the days leading up to the mission, I could not help but wonder if the other applicants to my mission felt the same. Thus, my research project was born. I had to know what this secret was. I believe there is a lot of assumption that when one wants to achieve something as great as being an astronaut, it is something one not only dreams about from a young age, but also one plans every course of one's life, education and career around the pursuit of making it a reality. On the surface it would appear to the rest of us the others had it together all along and the path was laid before them.

What Is an Analog Astronaut?

NASA and Beth Mund of Casual Space Podcast have defined analog missions in the best way. Analog missions are field tests in locations that have physical similarities with extreme space environments. NASA engineers and scientists work with government agencies, academia, and the industry to gather requirements for testing in harsh environments before they are used in space. Analogs often look to test and research new technologies, robotic equipment, vehicles, habitats, communications, power generation, mobility, infrastructure, design, and storage. Behavioral effects, such as isolation and confinement, team dynamics, menu fatigue, and others are also observed.

Past generations used analog missions to prepare for leaving Earth's atmosphere, landing on the moon, and permanently orbiting our planet. In keeping with this concept, NASA is using analog missions to prepare actively for deep space destinations, such as the asteroids or Mars. Analogs provide NASA with data about strengths, limitations, and the validity of planned human-robotic exploration operations. Analogs can help to define ways to combine human and robotic efforts to enhance scientific exploration. Analog locations can be found all over the world, including the Antarctic, oceans, deserts, and volcanic environments.

The New Right Stuff

As we enter adulthood, we are thrust into the realities that life brings, including bad habits and learned behavior. Imagine if there was a resource that equipped every inhabitant of this blue marble with the knowledge and tools we need to be better humans. SpaceKind's mantra is "space and mindfulness have the power to bring the world together." By becoming a SpaceKinder, you are instantly part of a community of others drawn by the cosmos and ready to contribute to humanity.

In the early days of space exploration, we were familiarized with the statement "the right stuff." Project Mercury astronauts were college-educated military test pilots. They were willing to take risks and maintain a sense of calm even in the most stressful

environments. We have all read the books and seen the documentaries recounting the stories from days gone by when tensions were high. These stress-filled moments did not offer environments supportive of internal well-being and the approach of others before self. With time we have learned that having the old “right stuff” is not enough. There is so much more to offer humanity when you approach crew training with a more holistic perspective. For us indeed to be successful, we must look beyond those traditional bonds of ideology. Spaceship Earth needs us to think beyond ourselves and to be open to vulnerability. As Loretta shares in her book, “Now we need people willing to put themselves at risk, not just physically, but emotionally. We need people who are smart and able to connect with others. We need people who can stay calm under pressure while being honorable, vulnerable, and inspiring.” During my SpaceKind training, I encountered what I felt was like a secret door opening. In the margins of my book, I wrote that I thought I had unlocked some secret world where I found my people. I was enabled to work through the weight of things that I had unknowingly carried around with me for a long time. Undoubtedly this baggage was part of what had been holding me back. Somehow, I had taught myself, no, convinced myself that I was not good enough, and somehow, I was not worthy of being the hero in my own story. During my journey, the exercises I was given made me a better human, but I sincerely believe they made me a better crew member for my analog mission at HI-SEAS. I was constantly reminded of “what would SpaceKind tell me to do” moments during my mission. I believe that my mission would have been an entirely different experience had I not completed the SpaceKind training beforehand.

Are Space People More Resilient

There is something identifiably different about the spirit of perseverance of space people versus non-space people. Time and time again, I have witnessed both groups of people encounter hurdles and diversions of their intended paths. During this research, the non-space people were halted dead in their tracks. They gave up and just stopped trying. In space people, the spirit of perseverance excelled. Instead of these same hurdles and diversions stopping them, those things became a catalyst to something bigger and, in some cases, greater than they imagined.

Just as our science has evolved, we must also evolve as a species. The approach we take with the human experience in space exploration begins within ourselves, and that includes the egos we have, our insecurities, the weight of rejection, and crushed dreams. Everyday work environments are poisoned by people’s insecurities, self-doubt, feelings of injustice, and other emotions that drive our darker side. Those feelings lead to lack of communication, failure to pay attention, and mistakes. Actions are then driven by miscommunication, hate, jealousy, etc. Simply put, we must check that at the airlock. We as a species should be demanding that along with the strict procedures, processes, and guidelines we must also weave into our fabric the empathy, healing, and self-awareness

to let go. Imagine if we approached life by letting go of the dark before we let it take seed. Remember how much John Glenn wanted to be the first American in space. He had worked and trained his entire career in the hopes of being selected. He felt he was ready and believed he was the appropriate candidate. But, as we know, history had its eyes on Alan Shephard. Each of us can put ourselves in John's shoes and imagine the sting of disappointment, sadness, and even jealousy that must have coursed through his veins. Little did he know that something greater, meant just for him, was waiting in the not-so-distant future. He persisted and continued to step out in faith, not knowing what lay ahead. He used that rejection as a catalyst into something that, at that time, he had not yet imagined as a possibility. History would forever remember him as the first American to orbit, and everything changed after that. While we never know what our own futures hold for each of us, we must keep our eyes fixed in one direction, and that is forward. You never know what is around the corner, and if you get caught up in the wrong stuff, you will never experience the right stuff.

My Experience on an Analog Mission

When comparing my connection with my crew while on mission at HI-SEAS and with my crew on the SpaceKind Leadership Council, there is a remarkable difference. During HI-SEAS, as time pressed on and each day presented new challenges, it is true that our crew naturally became closer to each other. While you are tossed into this intimate environment as strangers, you emerge closer and more connected. Open communication occurs quickly, and the ice is broken within the first few days on mission, allowing paths of openness and organic bonding to begin.

For me, being the one crew member who came from a different background than the rest and not being someone who worked in the space industry, I anticipated that this might affect the connection between myself and the crew. While I could not relate to all the academic conversation and could not share college stories, it did not diminish the connection. Although the paths were each laid in their own intricate ways, we each had parallels. Every one of us had experienced rejections while pursuing our careers that turned into drive and ambition to keep moving forward. Not even one of us ever took those "noes" as our final answers. Each hurdle turned into more opportunity, and from those opportunities evolved more experience, more networking, more knowledge, more connection. On Day 1 of our mission, a few of us met at baggage claim while awaiting the remaining crew and began to get to know each other. I sat there in awe overhearing another crew member who has extensive education and credentials express doubts about applying to the mission. I heard this person acknowledge that it was competitive and express doubts about the likelihood of getting accepted even before applying.

The first four days were the hardest. The lack of intimate connection with the only living beings near me for the foreseeable future was palpable. I was feeling inferior to my peers and feeling doubtful of my ability to achieve anything while on mission. I began

sending emails back home to my husband expressing my discomfort, explaining how I did not feel that I belonged, and wondering why I had been chosen. I was doubting my own ability to find something to connect with the rest of the crew. I was afraid of not being accepted or viewed as not belonging. The imposter syndrome was so real, and I felt that if they found me out, it would be crushing. Here I was, having been selected. I made it. Hundreds per mission apply for this spot, and here I made it. I had dreamed of being selected and longed for what it would feel like. In my heart, it was not just for me, but for everyone back home, for my community and for all those people that struggle with pushing onward with things they dream of achieving. Although we had email comms back home, it was not the same as being able to have face-to-face conversation with someone you know and trust. I felt very alone and on an island, both literally and figuratively. Our commander had stated in our training that she was there for us as a group and individually, and while I believed it and I knew I could go to her, there was such hesitation because I did not know her. Outside of the minimal interaction we had had up to that point, she was still a stranger to me.

During the first week, each crew member took a turn to tell his or her story. Everyone shared their love of space and how they got to where they were. The parallels were wildly similar. Each crew member would encounter some type of diversion at some point in their lives, adjust tactics, and just keep pressing. One experience would lead to the next and the next and so on. It is quite fascinating how brokenness and disappointments lead to something magnificent when you just absolutely refuse to give in to the rejection. I am so amazed at how people push themselves. I am so incredibly interested to unlock more knowledge of what it is that really makes driven people so driven.

It was a similar situation to the non-space people. I would pursue a similar line of questioning, and some were just organically "exposed" during their story telling. One surprising element in the non-spacers that I did not expect was that each one of them I observed shared the same feeling of being in their adulthood and still not knowing what they were truly passionate about. They still did not know what would truly make them happy in their careers. When asked, they could not come up with an answer. Each one is working in areas completely opposite to what would make them happy, and they have typically taken the same types of jobs. They all equally felt that they simply accepted what they were handed and just settled for it. Some were college graduates, and some were not, but they all shared the same perception: "I don't know what makes me passionate and I don't know what I want to do." It made me so sad because it felt so empty and lacking in hope. Overall, it felt as if you have these perfectly capable people that have been brain trained to be incapable of dreaming of something better for themselves. Over time, they have been fully convinced that they either did not deserve the happy ending or they never felt driven enough to continue the pursuit.

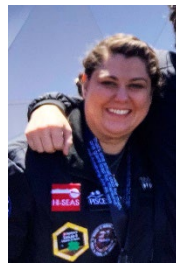
Proposal for Future Research

If we approach challenges, rejection, and turns of events by using them to encourage ourselves rather than be discouraged by them, we grow stronger. That strength is then used as motivation and drive to develop our natural perseverance. The human spirit is an unstoppable force when it is inspired. While inspiration can come from many places the most powerful is the rejection or turn of events experienced. In the absence of that, you would not feel the insatiable hunger, the drive to keep going. Imagine for a moment if everything you have ever worked for, every achievement you earned had been just handed to you. Think of the lessons you learned along the way and how with each moment you were molded and made into a new person. A true metamorphosis. While some of us are born with more natural inclinations to use these as superpowers, others are not. I believe that we need to create different types of training that help to guide, motivate, mature, enhance, and bring awareness to every walk of life. If it truly is going to take everyone to get to space time and time again and to expand the exploration of our universe, then we must also evolve the way we approach the training. It cannot continue to include only a niche group of people, but it must be designed for every human. It is going to take every one of us, baggage and all.

Crews that work through new adaptations of training such as SpaceKind are more connected with each other prior to missions and are more equipped with tools, resources, and support to be successful rather than just being a good crew member. Embracing the rejection, the dark experiences, and using what you have learned as a superpower makes you a better person. While we already know the importance of analog missions, there is an opportunity for enhancing the research performed at these habitats. To collect dependable data to review, we need a research project that focuses on studying the output from three different analog crews. One crew should be complete strangers (as per the typical), one crew needs to have had 3-6 months of virtual communications leading up to the mission, and one crew needs to have dedicated, deep, intimate connections due to attending SpaceKind Level 1 and Level 2 training (crew leadership included). My theory is that with each crew we will see team cohesion and connection, but the more intimate the crews are with each other leading up to the mission, the more successful the research is likely to be. Each crew should have assigned tasks, projects, surveys, situations/obstacles to overcome, etc. Within these, crew diversity is key. Crews must include not only a multicultural collection of people, but also those without higher education and experience working in the space industry. If we are to demand that "space is for everyone," then it is time we put action into that statement and walked the talk. If we continue along the path of only learning and listening from one perspective, then how will we ever adapt? It simply would be nothing more than regurgitation. We invest in simulating science, but we also need to invest in simulating the human experience. That is the invisible and vital component that ultimately determines mission success.

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Editors' Notes: The practice of citizen scientists participating in analog astronaut training is becoming more and more common. Like professional astronauts, these analog astronauts train for space in analogous environments here on Earth. In this paper, Monica Parks offers valuable insight into the experience of participating in an analog space mission, including some of the philosophical and psychological consequences. She also shares her experience with space-inspired training that is even more accessible to others via online classes and community, such as Loretta Whiteside's SpaceKind programs. As these opportunities become more common, so too will space philosophy become more accessible to other citizens of Earth. ***Gordon Arthur and Mark Wagner.***



About the Author: Monica Parks is an analog astronaut and civilian scientist in Munford, Tennessee. Her leadership tenure includes the SpaceKind advisory council, HI-SEAS, Ignition Kuwait, and Mars Society Sweden, where she has served in advisory roles as well as creative management. As a long-time advocate for inclusion in the space industry, Monica also spends time speaking to young students about the importance of pursuing careers in space regardless of a person's background, because "Space is for Everyone"!