

**NASA DISCOVERY PROGRAM 30<sup>TH</sup> ANNIVERSARY  
ORAL HISTORY PROJECT  
EDITED ORAL HISTORY TRANSCRIPT**

SHARI E. ASPLUND  
INTERVIEWED BY SANDRA JOHNSON  
ALTADENA, CALIFORNIA – JUNE 1, 2022

JOHNSON: Today is June 1<sup>st</sup>, 2022. This interview with Shari Asplund is being conducted for the Discovery Program 30th Anniversary Oral History Project. The interviewer is Sandra Johnson and Ms. Asplund is in Altadena, California, and talking to me today over Microsoft Teams. I appreciate you taking the time to talk to me today for this project. I've been excited about getting a chance to interview you. First of all, I want to ask you to briefly describe your education and background and how you ended up at NASA.

ASPLUND: My bachelor's degree is in journalism, and it's from the University of Nebraska at Omaha, which is where I grew up. I moved to California right after graduation hoping to get a job in the media of some kind, television, radio, newspaper, magazines, anything, but no, I got nothing. I worked in a variety of jobs that I wasn't that happy about, and I finally got a job at Caltech [California Institute of Technology, Pasadena, California], and I took the job as a secretary. I didn't want to be a secretary but it seemed like a good place to work, where you would get your foot in the door and have other options. I found out that the guy who was in their public information office, which is what I was kind of aspiring to, had been there 20 years. He was the only guy in the office, and he wasn't going anywhere, so I thought okay, that's not going to happen. But the Jet Propulsion Lab [JPL] is managed by Caltech for NASA, so I would talk

to people who worked at JPL. I had a couple friends who had left Caltech and gone to JPL. Someone sent me a job opening and so I applied and got that job, and that was in the early '80s.

I was doing some technical writing in that job, technical writing and editing, which was more what I was interested in doing. But then that job disappeared. It was military-funded and those come and go a lot, those projects. Then I moved into doing administrative work, so I was doing administrative work for a number of years in different capacities, such as project and program office administrator. Then I was just ready for a move and I wanted something different, and one day I saw this job listing for someone to do education and public outreach for NASA's Discovery Program. This was 1999. I tried searching online. I really couldn't find much of anything about the Discovery Program. But I applied for the job, and it was an interesting setup.

There was the Discovery Program Manager, who was a NASA civil servant working within the NASA Management Office at JPL, which was not a huge group, but then this office was going to be set up as the Discovery Program Support Office to support him and the missions. It was just a small four-person office, and they wanted someone to do the education and public outreach because that was such a big part of the Discovery missions. I think it was the first time that NASA had required an education and public outreach plan for these science missions.

I applied for the job. It sounded like an absolute dream job to me. I was so excited when I had my interview with both the JPL office manager who was going to manage the small office of people and the NASA program manager. When I got the job, I was just thrilled. I was able to shape it because it was so new, and basically one of my first jobs was to set up a website, which is why I couldn't find anything at the time, because there wasn't one. I had never done that before. I worked with a lot of the different web people that I contacted at JPL to figure out how

to create a website. Both of the managers that I worked with, the NASA one and the JPL one, were just great to work with. There was a lot of freedom for me to be independent, to work with colleagues.

As it turned out, at the time NASA Headquarters had formed what they called an ecosystem of NASA education and outreach people. There were “forums” set up by topic. It was solar system, the universe, Earth science, and heliophysics, but obviously we were part of solar system. The woman who was the codirector of NASA’s Solar System Forum happened to be a good friend of mine at JPL, so she and I worked together a lot, because our funding was from NASA, we were doing NASA-wide work, not just JPL-specific work. That was great, having that connection with Leslie Lowes.

Then the other part of this ecosystem was regional brokers; there were about seven or eight of them across the country. Their charge was to do education and outreach working with the NASA missions within their region, whereas the forums were working nationwide but within their specialty like the solar system. It was a great community of people to meet with. Jeff [Jeffrey D.] Rosendhal was the head of it. We had probably quarterly meetings with this whole community coming together, working together, learning from each other and able to coordinate. It was really a wonderful thing to be part of in those early days with so much focus and interest and funding for education and public outreach, trying to reach not only the students and encourage them to want to get into the STEM [Science, Technology, Engineering and Math] fields, but also their teachers. We focused more on doing workshops with teachers. Eventually Leslie and I actually led the focus on working with after-school programs because we learned that in the out-of-schooltime programs they have much more flexibility with what they’re able to do. Schools have pretty strict [curriculum], you’re doing reading, and you’re doing reading

again, and then you're doing math, and then you're doing more reading. But out of schooltime is when they have the flexibility to do fun things.

We would try to tie many of our programs and projects that we were working on, our curriculum lessons and activities, into what would match with the school day. It was a fun, more active version of it. It's a long way of saying that's how I came to that job, and I did it for 17 years and I loved it. I had amazing opportunities. I reached so many people, worked with great colleagues. You feel like you're making a difference and of course we're reaching such a tiny percentage of the population, it's always frustrating that you can't reach more. But it was great.

JOHNSON: It sounds like it really was. It was an interesting time because Discovery started in the early '90s, but you mentioned that this was a new position in '99 for the Program Support Office. You mentioned that they're one of the first programs that included education and outreach, but why do you think they wanted to include that with Discovery? Why did NASA think that was important?

ASPLUND: I think they must have realized that the excitement of space exploration is something that really engages kids. I think they must have heard from various quarters that this is something that wasn't being done elsewhere. There was a time in the 2000s with government wanting to cut back and Congress questioning things like we have a Department of Education, why does NASA need to be in education, why is the National Institutes of Health involved in education. But it's a different focus. I think at the time NASA realized and had the opportunity to really use the cool science they're doing, whether it's the astronauts or the exploration of the planets or the extensive Earth science work, just to be able to share the science specifically with

the public in interesting and engaging ways, and running the full gamut from things that would interest elementary schoolkids to programs for college students who would aspire, or NASA would hope they would aspire, to coming to work for NASA at some time.

It really ran the gamut, and I think there was just some wisdom at the time that told them, “We’re not doing the most we can do to try to convey what we do to the public and to students.” I really have never known how it was that the Discovery Program requests for proposals came to include a call for an education and a public outreach plan. It was so interesting because they all had a slightly different approach, different partners. At my level with the program office it was so nice because I got to work with all the different teams in various ways. Some I worked more closely with than others. It was great to be part of what they were all doing and to try to support them at the program office level and help widen their reach in ways that I could.

JOHNSON: Let’s talk about those teams. When this education and outreach was going to be part of these missions, and I’m assuming this started once the missions were selected, they had gone through this whole selection process. Then you have the PI [principal investigator] and the project manager for each mission. How was the education and outreach for each mission determined? Was that something that the people running the mission came up with? Did you help them with that? Or were other people assigned to each mission?

ASPLUND: Because the proposals needed to include the education and public outreach component, I believe it was the PIs and probably see some of their colleagues, and maybe they reached out through their institutions, and maybe even to NASA for recommendations. But yes, the team was usually in place at the time the proposal was written, and then if the proposal was

selected and funded, then I'm sure many of the proposals would have modifications made to not only the science but also to the education and outreach plan. But yes, usually whoever was the team at the time of the proposal became the team if and when it was selected.

JOHNSON: Then that's part of the proposal, which I guess I didn't realize. That's pretty interesting. Where did the budget come from for what they were doing with education and outreach? Was that part of the budget that they were given?

ASPLUND: It was part of the budget. I think at the time when you wrote your proposal you had to include at least—I believe it was 2 percent, at least 2 percent of your budget needed to be directed toward education and public outreach. It could be more. Some did more. At some point it evolved down to, I think, 1 percent, but even that was significant. It was such a variety. Some focused much more on developing curricula like the MESSENGER [Mercury Surface, Space Environment, Geochemistry and Ranging] mission to Mercury. Their partners were Pinky [George D.] Nelson and Shirley [M.] Malcom from the AAAS [American Association for the Advancement of Science], and Stephanie Stockman at the time, who worked at Goddard [Space Flight Center, Greenbelt, Maryland]. She was a geologist, so there was a lot of focus on the geology of Mercury and creating lessons that focused on that. It really just depended on who the lead people were, on what their focus was. But they would pretty much always try to have components for every level of schoolkids and the public, of course doing various things to engage the public.

There was a program started at JPL called the Solar System Ambassadors. It was originally for the Galileo [Jupiter] mission but it was expanded solar-system-wide and it was

where volunteers from across the country applied to become an ambassador. They got no compensation, but what they did get were trainings and mission materials, and they were required to host some kind of public outreach event in their communities four times a year. They were required to do four a year, but they could do more. Then there's a big reporting component. Each mission would work with these ambassadors and make sure that they were getting trained on their mission, so that would be one of the things they would share. In those days the missions created a lot more materials to hand out, bookmarks, stickers, and whatever. They don't do that so much anymore either. But there would be handouts that these ambassadors could use.

There were many things that all the missions could take advantage of, apart from their specific plans. There were just a number of opportunities, like when Leslie and I started heading up this effort to reach out-of-schooltime programs, there's national conventions and there's regional conventions that are for out-of-schooltime providers and leaders, and we would go to those. I would head up the big NASA booth and give away just tons and tons and tons of materials. We would offer workshops on how to do our activities. Those were the kind of things that we were making available to all of the missions, so that they had their own specifics but they also had a lot of commonality that we could all do together.

JOHNSON: The missions themselves, the people working on this in the missions, the education and outreach, was there any oversight from NASA? I know they had to put that in the proposal, but was there any oversight to make sure that they were doing what they had proposed? Or did they ever run into any problems where they had to reach out to your office to help connect them with the right places or to help them with some of the work?

ASPLUND: No, not really in that sense. I think there was oversight. When you're doing your budget reporting, how much is the education and outreach component spending and what are you doing? I'm sure they reported to their management regularly. Some of the PIs got much more involved with the education and outreach than others. Some were just very strong proponents of it, wanted to be part of it, give talks. Others just said, "I hired you to do that and I know you'll do a good job, and hands off from me." It was just like everything with these missions. It was a lot based on the personalities of the people and how they wanted to do things.

I was always available. I met with some of the mission folks regularly. But yes, they did look to me for support on how can we do this or how can we do that. There was the issue of depth and breadth. Sometimes you want to reach as many people as you can, and that's become more of the focus of NASA now with social media. If you have millions of followers, they're happy. But in those days the missions were really looking to go deep—some of them had a specific cadre of teachers that they worked with over a period of years. They'd give them materials. They'd train them in the lessons. They would follow up. They would do all kinds of things really trying to reach kids at a much deeper level, a much smaller number of people, but at a much deeper and you hope more significant level rather than just reaching millions with a tweet. That's what it's become unfortunately.

JOHNSON: It's definitely a little different now than it was. The technology has definitely changed over the years. You mentioned when you first started that one of the first things you had to do was develop a website or oversee that. Talk about that for a minute and some of those first projects you worked on as far as generating the information for the website. Were you



writing that information? How was that information gathered? Also I think I read you were doing newsletters also.

ASPLUND: Yes, I did. My two managers came back from one of their quarterly meetings. One of them had the brilliant idea that I should do a quarterly newsletter, and I could just easily take the information that had come out in these quarterly meetings. It's pretty dry information. I did start doing a quarterly newsletter. They used to be archived on the website. I would seriously doubt if they were anymore. But what I would do when there was a significant mission event coming up like a launch or some kind of encounter, I would interview three of the principal people. The PI, the [project] manager, and sometimes a co-PI. I don't know why I was doing three. But I would record these on my little tape recorder over the phone, and they would be at least an hour if not more, which of course takes forever to transcribe because it's just me doing it with my rewind. But I would do some pretty extensive interviews, and then I would include those in the newsletter.

There would be an update on each mission, just whatever was the current status of each mission. Dave [David B.] Jarrett, who was the NASA [Discovery Program] Manager, it was his idea basically. He was very interested in the education and outreach. As you know, I'm still in touch with Dave today after all these years. He liked to write a note from the manager where it would give him an opportunity to share some of his thoughts on whatever was current at the time. It was just a nice little overview. In the early days we'd even print it and if there was a launch coming up, we would hand them out as part of the launch packet that people would get. But yes, after a point it was just strictly on the website.

Then I cut it down to three a year, and then I cut it down to two a year. Because it was a tremendous amount of work and you kind of wonder are they really getting read. But yes, it was a fun thing. I remember interviewing Alan Stern when New Horizons [mission to Pluto] was about to launch. I asked him some questions and he had some great answers. He said, “Wow, Shari, you’re asking me things that no one else does,” and “I hadn’t thought about this story for years.” There’s one he told me, and I’ve read it elsewhere since, that when he was a kid he was so interested after a tour of I think the [NASA] Wallops [Flight Facility, Virginia] center. I think he lived in New Orleans [Louisiana]. He wrote to Johnson Space Center [Houston, Texas] and asked for drawings of the Apollo spacecraft. They said, “We only send that to published authors.” So he sat and wrote a story about going to an asteroid. His grandfather had some kind of a business, and he had his grandfather’s secretary type it for him and make three copies. He sent the one copy off to Johnson, and he said within a period of time boxes were arriving with all this information that he had requested. He said, “It gave me a headache just looking through it all, but I had it for years and I would go through it and go through it and go through it.”

It was cute because he said he had forgotten all about that but I jogged his memory. I always enjoyed doing the interviews. The transcribing and writing and editing as you know becomes a bit more tedious, and of course I had to worry about length. But yes, the newsletter became a regular thing. For the website, yes, I wrote all the content for the website. With a journalism background of course I wanted to write more, and even back in 1999 it was like no, you need more pictures, less writing, people aren’t going to read all this. It was really learning how to create a website.

After maybe six or seven years we completely redid the website. I hired a different group to work with me. The second version I think was really pretty engaging. We worked very hard

on it. It was funny because at the time it was a big deal for us, for Dave. We had our own website, it was Discovery.NASA.gov. We didn't want to be in the portal. We wanted to be our own thing. As I was retiring five years ago, we had been working on redoing the website yet again to make it responsive for phones and tablets because the old one was not. But the team that I ended up having to work with, not the team that I wanted to work with, were not really doing what I wanted, were slow as molasses, and it still wasn't done by the time I retired, and I started about nine months before. It just got picked up by someone else at Marshall [Space Flight Center, Huntsville, Alabama]. It's now part of the portal and it now has next to no information on it.

It's funny. You see how you start, and you build up and you build up and you build up, and then everything changes and it comes back down. It's interesting how things evolve like that, but at the time we tried to have it be very creative. We had a lot of fun activities on it to make the education component something that people could really go to and find a lot of fun things.

Some of them were things we created but some of them exist on other sites. Mostly we were focusing on what our missions had created, of course.

JOHNSON: Let's talk about some of that. One of the things I read, I think it was in one of the workshops that you gave, there's a video online. You made the statement that science inspires art and art can inspire science. Do you want to talk about that for a few minutes and maybe what you meant by that and how that works?

ASPLUND: I don't know if I sent you anything for our one activity that was called Art and the Cosmic Connection.

JOHNSON: No, I don't think I have that one. You sent me the one about the video, the kids doing the video.

ASPLUND: Art and the Cosmic Connection was done by some wonderful partners in Denver [Colorado]. If you're talking about using some art in this book, the whole thing with Art and the Cosmic Connection is it's a slideshow that you can show to students of all ages because it can easily be adapted. It uses the elements of art, line, shape, color, value, texture, to identify features on the rocky planets or the moons of the big gas giants. If you see circles on a picture of the Moon or Mercury, those are craters typically. This activity just takes that kind of concept and it was a wonderful, wonderful activity. We would do it with kids. I would teach teachers how to do it and the out-of-school leaders. But I did it with kids a number of times as well, and so did our partners. After the slideshow you then hand out paper and pastels and images that we had laminated, 8-by-10 images, some of them were from Earth but some of them are the moons and the rocky planets. You allow the kids to pick one they like and draw it.

As they're drawing you walk around and talk about what this feature is. The squiggly lines that you might see in these images could indicate erosion of some kind, sand dunes. If it's a circle within a circle two craters, is one older than the other? You can really get into the depth of that. It's using art but you're learning the science at the same time.

JPL had formed a group led by a guy named Dan [Daniel E.] Goods. I think they call themselves—it's something visualization. I'd have to go back and look it up because it's been a

while. But it's totally a team that uses the visual arts to convey science in so many different ways. Most of their team are graduates of Pasadena's ArtCenter College of Design. These are artists talking to the scientists and using art to convey the science, and at the same time they will bring in teams of scientists to help them be more creative in their thinking. It's really an amazing process. I did some interviewing with these folks for a presentation I was giving. It's not something you would just tend to think about right off the top of your head, but to see how they can bring a group of scientists in and just use different methods to inspire them with visuals and tactile elements and things. It really does work both ways.

I've heard people who are in the field of materials science talk about getting their inspiration from nature. Velcro and many many other kinds of things that are used in science. It really is such an interesting two-way relationship with art, it definitely can inspire science, while science definitely inspires art. It's amazing when you have the people who are creative enough to really be part of both from the artistic and the scientific end.

JOHNSON: From what I read it was important to add that A [Art] to STEM education to make it STEAM.

ASPLUND: STEAM, yes. I felt it was. To me it was very interesting because I don't have a science background, and there are so many kids who would say, "Well, I'm not really interested in science." So you can try to get them involved in something that they do like, the art, the music. I hired an evaluator for *Space School Musical*, and they talked to a number of the after-school program leaders who led the musical and also kids. They talked to a lot of the kids who had performed it, and they said, "Yes, I really wasn't into science before but now I am and yes,

now I want to study much more about science.” It’s just a way to reach kids through a nonconventional route.

If someone had reached me that way when I was a kid, I feel like I could have had a wonderful time studying things in science. But it was never presented in a way that really engaged me. I used to hold an annual educator workshop at JPL, and at some point, a mother asked if she could come. She was a homeschooling mom. I said, “Sure.” Then she asked, “Can I bring my son, because I think he’d really enjoy just being there?” I said, “Sure, as long as he’s not going to be bored.” He wasn’t.

He came three years in a row. He was about 10, 11, and 12. I just assumed the first year that he was a kid who really wanted to be a scientist or engineer. No, it turns out he’s much more interested in graphics and animations. I started incorporating that aspect into some of these introductions that I would give to these workshops, that there are many types of jobs at a place like JPL where you’re still working with space but they definitely need people that can do the animations and the graphics and help tell the stories in the more visual way, and so many other areas as well. You realize that oh, there’s somebody out there who loves space, but they don’t see themselves as a scientist or an engineer, but there are definitely so many other options.

JOHNSON: Yes. We try to tell that to people too. Obviously, we’re historian type people working at NASA, but people don’t understand that there’s all kinds of people working at NASA and it all works together.

ASPLUND: Works even better.

JOHNSON: Let's talk about some of those productions. You talked about the *Space School Musical*, and you sent me that link<sup>1</sup>. It was very entertaining. I did enjoy it. Let's talk about how that came about and how it was developed and then how it was disseminated, the idea that other schools could do the same thing.

ASPLUND: I'm kind of an avid exerciser, I live here in the foothills of Altadena. I can walk up or down my street and be on hiking trails. I like exercising, moving, and I had this idea in my head, I wanted to find someone that could develop some fun activities to get kids up and moving. That was to incorporate the science learning while you're moving. I went to one of these out-of-schooltime conferences. Normally I would go as a presenter, but this time I just went to attend other people's workshops to see what I could learn. I went to one that just sounded really fun to me. Her name is Kellee McQuinn and her business is called KidTribe. One of her big focuses was Hula-Hooping. She would bring hundreds of Hula-Hoops in a big van to schools around not only southern California but all over, it turned out. It was a national conference, and it was in San Francisco, but she and I were both in southern California. She would get kids Hula-Hooping. I went to this workshop that she had where she told her story. She was in her thirties, she had started out as a dancer and actress, but after 9/11 she decided she wanted to follow her passion of working with kids, so she opened this business, just by the seat of her pants, called KidTribe. It was about getting kids up and moving, obesity prevention, and healthy eating. The focus was really Hula-Hoops. She created a lot of short videos that were just fun and funny.

At the end of the session she had the Hula-Hoops there and we all did our hooping. I just went up to her afterward and I said, "I don't know where you're located. But I'm in southern

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<sup>1</sup> Space School Musical video: <https://www.jpl.nasa.gov/edu/learn/video/space-school-musical/>  
Space School Musical details: <https://www.jpl.nasa.gov/edu/teach/activity/space-school-musical/>

California and I work for NASA and I would love to see if we could find a way to incorporate some of your fun activities to get kids up and moving while they're learning science." I was thrilled when she said she was right here in the Santa Monica area.

I had her come out to JPL, and we sat and I told her about our missions that are going to asteroids, comets, planets, moons of planets." All of a sudden, she just said, "Shar, I see a play."

I thought well, that's intriguing. I said, "All right, I like that." We talked a little more, and I had the independence then to say, "Do it." I didn't have to get a lot of approvals. It was wonderful. That wouldn't have happened even probably five years after that. But I put her in touch with a good friend of mine who was at the Johnson Space Center at the time, Kay Tobola. I worked with Kay and Jackie [Jaclyn] Allen. You might know Carl [Dr. Carlton] Allen who was the curator of the Moon rocks. I worked a lot with Jackie and Kay, so I put Kellee in touch with Kay to pin down what should be taught, what are the elements that should be included in this musical.

She developed these nine songs that cover the planets, moons, asteroids, meteorites, the stand-up comet, and sent me the first draft within about six weeks. I was amazed because she admitted to me later, she really knew nothing about the solar system. She got one of those solar system for dummies books, and she worked with Kay. She wrote each song in a slightly different style. She sent me a recording of her singing all the songs, and I loved it. I thought it was adorable.

It was funny. Before we even got to that point, I did have her come back to JPL one more time, and we met with a former teacher who worked in our Education Office who I didn't even know it at the time, but he was someone who had performed in musicals. He had a lot of credibility. Everybody liked and respected him, Art Hammon was his name. I just thought, let



me see what Art thinks about this. Is this crazy, or is this cool? He loved the idea. He had all these money-saving cheaper ways to do it. Maybe you don't do this. Maybe you don't do that. I said, "I have a budget, that's not an issue for me." Others also had suggestions, such as, "This doesn't need to be a video, Shari, just have her write a script." I'm said, "No, we see it as a video."

A lot of people liked the idea but had different approaches that they were so wanting to share with me. I said, "Thank you. I appreciate your input." I loved Kellee's ideas and I went with her 100 percent.

As it was nearing completion, I showed it to the deputy manager of JPL's Office of Communications, because he was very skeptical when I mentioned it to him. But it won him over as well. Once we had the final script, I had a scientist at JPL go through it for accuracy of the science. Then it was filmed. Kellee actually went to a high school in Los Angeles and auditioned kids for the parts. Her approach was not necessarily to even select the kids who did the absolute best. It was to get a nice mix of kids who were enthusiastic and wanted to participate. She did a great job of that. She came up with the costumes that were adorable. I think she called in some favors. She also worked with a choreographer on the dance moves. It was filmed over three days at a studio in Burbank. I was there for all three days. It was quite a process.

She worked with someone to do the editing; the recording is done separately. It was a pretty good-sized undertaking. Once it was completed, we even had a premiere at a place in Hollywood where we invited, of course, all the kids who had performed and their families and others. It was just great. Once we had it and it was on DVD and on the website, then I had a budget where we went out and started doing trainings.

Kellee had a lot of connections because of the work that she had already done through her business. She did close to 150 trainings for me over the next five or six years, both with teachers and with a lot of after-school programs. These trainings would have anywhere from maybe 25 to 150 people, so the reach was pretty wide. I used to head up JPL's presence at the San Diego Festival of Science every year, which was held at the baseball stadium where the Padres play, at a park outside the stadium. I can't even remember who the connection was, but they have a program with a stage. Some are just science demonstrations and things. But we had our afterschool program from the San Diego area that we had trained. Their kids came and performed the musical there live before hundreds of people. It's just such a fun experience for the kids. It's a learning experience.

My friend Leslie who I mentioned, who was the forum lead, her daughter was going to school in La Canada, right next to JPL, and Leslie led a performance for her daughter and the students there of the musical. In a lot of cases they will lip-synch to the original recording. Leslie and her group, the kids had microphones and did all their own singing as well. She told me afterwards, "It's an experience the kids will never forget, and they learned so much."

It was just such a rewarding thing for me. There was a group in South Dakota called the Dakota Players, and they would have original plays written and then this group would go throughout the state over about a four-month period. Every week they would do a residency in a different school, culminating with a performance of whatever that play was. We sent the DVDs of *Space School Musical* out to our NASA JPL Museum Alliance. It was museums all over the country, the museum equivalent of the Solar System Ambassadors. It was a group who didn't have access to anything any museum wouldn't have, but they did receive trainings and materials, and you could just be more tied into NASA if you wanted to be part of this. All of those

Museum Alliance members got a copy of the DVD of the musical, and one who was in South Dakota happened to have a connection to these Dakota Players, and showed it to them, and they contacted me and asked if they could use *Space School Musical* for that next season. I said, “Of course,” and I worked with them, because they wanted to make it a little longer than the 30 minutes and they added some dialogue. They added some dialogue I found was really offensive actually, surprisingly. It was like they made Hannah, our main character, being really bullied, like nasty bullied. I said, “No no, I can’t have that.” I worked with them to rewrite it because I wouldn’t allow them to do that. I was working with my evaluator at the time, so I sent it to them. I said, “This is what they want to do, I think it’s atrocious, what do you think?” They totally agreed with me. I couldn’t believe they would take that approach to have this main character being so bullied. At the end it they all apologized. But no no, don’t go there.

Anyway, they did the musical over a period of months, and I actually went there for the final week of the final performance to Elk Point, South Dakota. I did some lessons and things with the kids as well. It was an amazing experience, because the whole town came to see the performance at the end. I really do think that it made a big impact. Kellee’s whole attitude always for her business and everything she does is to try to change people’s lives, and I think she really does. She’s an amazing, amazing person. The musical was just such a wonderful experience. It was funny because initially my thing was getting kids up and moving, and she said, “Yes, we can do some activities with the hooping. But I see so much more.” It was great to find a partner that had that capability because I think that was probably a rare thing really.

JOHNSON: Yes. The girl with the Hula-Hoop, Saturn, she just amazed me. I kept thinking how does she keep doing that? Just keeping that hoop going.

ASPLUND: It must have been around 2010. NASA was focusing on what they were calling the Summer of Innovation. It was a big effort to try to engage kids over the summer, because studies show that there's a lot of learning loss over those summer months. NASA had this huge effort going, and they were going to kick it off at JPL. I was pretty surprised when the manager of my communications division came and asked if the kids from the musical could come and do a live performance.

It was funny, they did. They came. Had to arrange a bus. Logistically it was not easy to do. But it was funny because you mentioned the girl who played Saturn. The girl who was Saturn in the video was not able to make it, so Kellee, the creator, and an amazing Hula-Hooper, filled in as Saturn and hooped away. Charlie [Charles F.] Bolden was there. Leland [D.] Melvin, the head of NASA education at the time, was there. A few other astronauts were there, so all these kids that came to perform got to meet all of them. It was just such a great experience. JPL bused in a lot of kids from the area for this whole daylong event. It was really fun.

JOHNSON: What year was that?

ASPLUND: I think it was 2010.

JOHNSON: When did you do the video?

ASPLUND: I think we had just done it earlier in 2010. I met her in 2009, it was filmed in January of 2010, and I think the kickoff was in June.

JOHNSON: That's so interesting. Not something you would expect from NASA as you said. I know that Charlie Bolden was always interested in the education aspect of NASA and getting that message out, so I'm sure he really did enjoy it.

ASPLUND: Yes, it was fun. I was watching him and he was standing there with Charles Elachi, who was JPL's director of course. They both looked like they were really enjoying it, so that was nice.

Probably the first product that I did, just kind of looking around, I knew most of the missions had some kind of a poster, and so I had the idea to do a poster that would be of course more generic solar system, not mission-specific, but something fun, something to reach the younger kids. I got the idea of a roller coaster through space, and I worked with some of our graphics people at JPL and it developed over a period of a few weeks, and then I hired somebody to put educational content on the back. It was a reading activity with the planets introducing themselves for the younger kids. I called it Space Thrills for kind of the double meaning, verb or noun. The first production of it, I probably made 25,000 of them, and I sent them to each of the NASA education resource centers across the country. I was bringing them to conferences, I ordered another 25,000 and then another 25,000. Then I ordered them in Spanish as well. I hired someone to do a Spanish translation. By the time I left I must have handed out, I can't even tell you, close to 200,000 of those or more.

Some teachers would ask if they could have two of them because they liked the front but the activities on the back they also wanted to put on display. Of course it was downloadable from the website. That was a really popular product. For a while I even had it on our website for teachers. If you want a copy of this, write to me and I'll send it to you. I kept up with that for about a year and then it became overwhelming. Somebody put it on one of these get your free sample type sites, and out of the blue one day I must have gotten hundreds and hundreds of requests just in one day.

I had other people trying to help me fulfill them all, and finally I just had to take it off the site. But yes, number one, it's free, but it was fun and teachers really liked it. It was a great visual for a classroom. That was fun.

JOHNSON: You mentioned before the video, when we were talking about that, that at that point you had more control over how you would spend the money. But let's talk about the budget. Is that something that you had specifically to use for projects like that and the poster and that sort of thing and that you could decide which ones to do in a given year?

ASPLUND: Yes, pretty much. By then that support office at JPL only lasted maybe three or four years. I'd really have to go back and look at the details, and you may have all that history. But the guy who had been our support office manager moved on to another position at JPL and Dave Jarrett then moved on, back to [NASA] Headquarters. Everything was in a state of transition for a while. But I still had my work and my budget. Then for a brief time JPL was going to do what Marshall is doing now, to manage the Discovery Program Office. They even selected a manager, and that was announced. I made an appointment to talk to this new manager just to let him know

that I was still doing this job. It was pretty clear that he had no intention of continuing me in that position. He had a couple other people in mind.

It was interesting because a friend of mine at JPL worked in risk communications, much more technical stuff. She called me out of the blue one day and she said, “Do you love your job? Because there’s an opening over here and I think you’d be really good for that.”

I said, “Well, I do love my job, but funny you should ask. I think it’s going to be ending soon.” I applied for this other job, and it was a very technical job, it was a lot of writing and research. It had to do more with planetary protection type of stuff. A month went by, I wasn’t hearing anything from the Discovery Program or from this other position, but I just kept doing my job, updating the website, and more.

Then I found out there was some opposition to JPL managing the Discovery Program because they had so many missions in it. It’s like how can you be fair and impartial when you’re also sending proposals? It makes sense. At that point, JPL was told they were no longer going to be managing the Discovery Program Office and it was sent to Marshall because Marshall didn’t do proposals and they wouldn’t be having any missions.

Now I got the word that this guy at JPL who wasn’t going to hire me wasn’t going to be hired himself because that job was taken away from JPL and it went to Marshall. I just figured well, who knows where that’s going. This was August, and I was told, “Probably plan by the end of September that they’ll transition to someone to do the education and outreach at Marshall.”

In the back of my mind that was okay, so that’s the plan. I had gone off on vacation the last couple weeks of August, and when I came back, I thought I better do something because I haven’t heard from that other job, and this job is going to be ending in a month. I need to do

something. Within minutes of each other, I got a call from someone in the new program office at Marshall saying they'd like to talk to me and would I be interested in continuing on in my role, even though the program office would be at Marshall. I said, "Yes. Yes, actually I would be very interested."

I hung up from that call and the person in the JPL risk communications office that I had applied for called to offer me the job, apologizing it had taken so long. I'm thinking, I'm kind of glad it did, because if I had taken that job and then had the opportunity to stay with Discovery, I wouldn't have been real happy.

I said to her, "That's really nice, I appreciate it. Can I get back to you?" Actually I believe it was Dave Jarrett who talked to the people he knew at Marshall and said, "You really should keep Shari, she does a good job." I have many things to thank Dave for and that's one of the big ones. Yes, they asked me to stay on, and so I did.

I didn't actually go there for the first time until a few months later. Kenny Mitchell was the deputy manager at the time and he was great. He was the one who was my contact and showed me the ropes. He told me that their plan had been just to keep me on for another six months while they really focused on coming up to speed on the missions and the priorities, obviously, and felt that at that time they would transition the education to someone at Marshall because JPL salaries are higher than Marshall salaries and they felt they could get someone to do the job for a lot less apparently. But they realized that I was good at what I did, and they were going to keep me. That was very nice to hear. I always enjoyed working with the people at Marshall even though I wasn't there physically with them. When I did go, everybody was just so nice. Each manager, there were probably four or five managers, they would move on to new things after a while. But every single one of them was supportive and great to work with.



It was interesting. Some of them continued Dave's tradition, like in the newsletter, of writing their note from the manager. Some of them loved that opportunity. Others would say, "Oh no, I don't want to do that. You want to write something for me, Shari?" I said there doesn't have to be a note from the Manager.

Everybody has their different approach. But they were all just so good to work with, the various people that I would meet. I would call in to meetings every week, various staff meetings. For me it wasn't a difficult situation, the fact that I wasn't there physically with them, because my work was mostly with the missions, and so many of those were at JPL. Most of the others were at the [Johns Hopkins University] Applied Physics Lab. I wasn't geographically close to them. Then we got Kepler [mission], which was up at Ames [Research Center, Moffett Field, California], that was a little closer if we needed to do things together.

It's kind of hard to see where things are going, but I never worried about it. I've always felt so fortunate to have gotten that job in the first place and then to have kept it after the transition, and to have the freedom I had. You asked about the budget. I had a budget. I didn't really have to specify, "I'm going to spend this much on this or that much on that," because I didn't necessarily know. Most of it was my salary and all the support things that go along with that. Then I would hire different people to work with me on the website, to create the poster, to do this, to do that.

As long as I stayed within my budget, I was fine. I did a lot of reporting, exactly what I was doing and what it was costing, but it was never a problem. I was always very supported by the program management.

JOHNSON: It's nice that they did support you so much, because as you said you never really knew what was going to come up or what you were going to be doing. To have that freedom to create these things is amazing. I just did some general searching, but I looked, and you did some other things. A lot of workshops. You want to talk about those and maybe some of those things that came out of those workshops or different videos that I've seen that were listed online?

ASPLUND: I did the annual teacher workshop. I think we did about eight of those at JPL. They grew and grew every year. It was an all-day workshop where they'd hear from the scientists of the missions and then we'd break and do an activity. It was a real nice mix of both hearing about the science from the actual people and learning related activities. The JPL people would be great about coming in on that Saturday and talking about their missions and doing fun activities. We'd try to break it up. If you were an elementary teacher or middle school or high school, and we'd try to have something for everybody that would be more of a focus for them. A lot of hands-on stuff. We did a lot of hands-on activities where you're making something. The workshops were held at four location simultaneously, not only JPL. It was pretty innovative.

My partner that did the Art and the Cosmic Connection, they're really makers. Their next activity that we did was called the Shoebox Rover. It was coming up with an idea for a mission and making a rover with basically a shoebox was your base. Doing a mission design was another activity that I had. We did a video in the early 2000s that was an overview video of the Discovery Program and all the missions that Dave had wanted done. I won a couple of awards for it. It was called Unlocking the Mysteries, NASA's Discovery Program.

A company called McREL based in Colorado was the education partner on the Genesis [solar wind] mission. I started working with them, and I hired them to do a few things with me

too. They would say, “That video could really be the basis of a great activity on designing a mission.”

We created that. We had this great activity for students to learn about all of the current Discovery missions and then design their own. Where would you want to go, what would you want to learn, how would you get there? All the basic elements. We taught that one in our workshops quite a bit. We’d have the teachers design a mission. It always would culminate with a poster. If you’re going to design your mission you need to create a poster to show us what it would be. That was always a very popular one because it’s got so much flexibility to be able to do so many things with designing a mission.

That annual workshop grew bigger and bigger and bigger each year, and it was great to see the people coming back and excited for it each year, and then the new people. Yes, we did a lot of workshops. Typically the National Science Teachers Association annual meeting. For those you have to put in proposals for a workshop. If they were accepted, we’d do workshops for that. We really dominated these out-of-schooltime conferences with an entire NASA workshop room the last number of years. Over the three days of the conference, for every time slot for a workshop there was some kind of NASA workshop going on. We really tried to flood the market because in the out-of-schooltime field, a lot of the leaders have no science training. They might be a college student who’s doing this part-time. It might be a mom. When you say it’s a science activity, it’s a little scary. We really worked hard to bring them the materials and show them that they could do it, that it’s about learning with your kids. It’s not just you having to be the teacher. You’re all learning together. Then just distributing all of those materials that were available free of charge that nobody knows about.

The workshops and the conferences were great, and you hope you're really reaching people that will then take the activity back and do it with their students. Hopefully for a number of years. That's reaching students through the teachers rather than trying to reach one classroom. We felt you're ultimately getting a lot more bang for your buck.

JOHNSON: Did you work with universities for any of this outreach?

ASPLUND: I didn't really. No. I got involved a little bit with some Native American outreach. There was a conference of Native American colleges, but I didn't really get involved with it. One other thing that I helped head up was called One Earth, One Universe.

JOHNSON: I was going to ask you about that. Yes.

ASPLUND: That was amazing. Phil [Philip J.] Sakimoto, who was at NASA Headquarters and worked with Jeff Rosendhal, had gone to a talk in Washington, DC, and met a woman who was a Native American. She worked at [University of California] Berkeley actually. He talked to her about some of the things that NASA has done and what does the Native community think of this. She said, "They don't think much of it." Some things were found to be offensive, carrying Gene [Eugene M.] Shoemaker's ashes on the Lunar Prospector Mission that impacted the Moon, that was a big controversial thing. At the time the Deep Impact mission was getting ready to send a probe to crash into a comet. In Native American culture these comets and asteroids are thought to be something that you wouldn't crash into. They have ancestors there, and all kinds of interesting intriguing stories. Phil contacted a couple different people at JPL and asked them if

they would contact Rose von Thater-Braan, the woman he spoke to, and just dig into it a little bit with her. Neither one of them did. I think one of them brought it up to me since Deep Impact was a mission in our program office.

I called Rose and I could tell she sounded very suspicious, like hi, I'm calling from NASA, and I was just wondering if we could have a conversation. When she told me what she did at Berkeley I asked her if she happened to know a woman named Isabel Hawkins, who was one of the forum leaders. Isabel was the Sun-Earth Connection Forum. She was an astronomer at Berkeley's Space Sciences Lab. It turned out Rose did know Isabel, and so I said, "Maybe the three of us could get together sometime and we could talk about some of these issues." I contacted Isabel and I explained it to her. I flew up there probably within a week.

The three of us sat and met and talked about some of these cultural issues where NASA is doing things that are offending the Native communities. Isabel was actually a Native of Argentina. She felt a tie to being a Native person outside of the U.S. typical culture. They got back with Phil, who agreed to provide funding. Ultimately there were two week-long sessions with about 40 people from various aspects of NASA. Some scientists but a lot of the education and outreach people. Then about 12 Native American elders. They were just two of the most wonderful weeks that I have spent, learning the Native culture, spending time with these people with such a different sensibility and grace. It was wonderful. I was just so glad to have been the catalyst for that. I really wasn't involved with the planning. They took it and ran with it, but I attended. I really do hope it made a difference. By the end the Native elders that were there had a deep profound thank-you to all of the NASA people for taking so much time to listen, just to listen and show that you care basically.

The NASA people, I think some of them were skeptical about this. I would hope those who attended gave it their full attention and tried to develop the understanding of what we were there for. I know it changed a lot of things for me. I thought it was wonderful. One of them, Daniella Scalice, who's at Ames, continued the relationship with the Native Americans. They've worked together and developed curriculum. I did go to a follow-up meeting at the Navajo Nation a few years after that. So there were a few, not many, but there were a few that really kept those connections and continued to try to work together.

I couldn't think of a way within what I did, which was focused on the solar system, that I could really keep that connection going. What Daniella did, she worked for the Astrobiology Institute, and so they were able to find more things that would make sense to work together with the Native Americans.

JOHNSON: It's really an interesting project that you wouldn't have thought about coming out of what you were doing. But I can see where it would be very interesting to be a part of it.

ASPLUND: Yes. It's just a whole different community to do outreach to really.

JOHNSON: Yes. Sometimes a forgotten community.

ASPLUND: Yes.

JOHNSON: Let's talk about more of a philosophical question I guess, more about the relevance and the importance of the Discovery Program, especially relating to what you did as far as this

outreach and this education. What do you think Discovery has added or the importance of Discovery for education?

ASPLUND: The fact that each of the missions did have their own plan for education and outreach, and in various ways would reach just so many people. It's just one of these things that you feel like oh my God, we did so great, we reached thousands with this or thousands with that, and then you realize it's still just such a tiny drop in the bucket, which makes it frustrating. Hopefully the Mars missions—of course Mars is separate from solar system in NASA terms, but we had missions that went to Mars. [Mars] Pathfinder was probably the first prominent one. I was talking about the education and outreach from the missions and the impact. It's hard to say what the impact is. People were very engaged in so many of those missions. The early Pathfinder, Stardust [comet sample return mission] especially. Stardust did a great job of outreach. Right after the samples came back, in that next week, there was a big teacher conference at the Johnson Space Center with presentations by the folks who had gotten the samples, because they were being curated there. In real time these people would come and talk to these, I don't know, it was well over 100 teachers, about what was happening, what they were seeing. Showing them pictures from the lab. I think they even got to take a little tour of the lab where the curation was going to be. These teachers are so enthusiastic and excited, and you just hope that they bring that to their students, and that for years and years after that they will continue to bring it to their students, because that's key too. If a teacher is enthusiastic about something they can share that with their students.

I've read about teachers who loved square dancing and they'd get all their students square-dancing because you're sharing that passion and it just makes it fun. We worked with so

many teachers that really were space nuts. They just loved the stuff. You really just hope that that is all getting shared with the students. I mentioned Alan Stern before. New Horizons did a great job of reaching their folks too, as did MESSENGER. MESSENGER had this whole cadre of teachers that was with them for the whole length of the mission, and it was a very long mission. You can only hope that what you do will have not only impact at the time but hopefully longevity, especially as some of these missions like New Horizons are still flying and hoping for a flyby of yet another target.

Of course the new missions are launching soon, such as Psyche [asteroid mission], and I don't really know what their plans are. I know that they weren't required to do a plan in the same way that the earlier ones were. As everything evolves it changes. But hopefully some of the work that was done will continue. There were just so many that were so interested at the time.

JOHNSON: Mentioning how things change over time, and we touched on that to begin with, that social media is so prominent now compared to when you were doing newsletters and printouts in those early days of websites. Let's talk about that evolution and how that impacted your job and what you were doing and what you were trying to do to get information out. Did it get harder or did it get easier? Or was it just harder with the type of information you wanted to disseminate?

ASPLUND: We had a Facebook page, and I didn't post on it real often, not constantly. But what I did post was usually just sharing something, either a NASA-wide thing that seemed relevant, or from one of the missions. I certainly didn't create content specifically for Facebook because it's



mostly a sharing type of thing. When I was doing it, I didn't have a Twitter account. I just felt that I didn't have time to really try to keep up with two social medias.

A lot of people were doing podcasting then, and I tried to think is there a way that I could try to do some kind of a podcast on maybe not a regular basis. But it just didn't really seem to come together. But it's something that was done more I think at an institutional level. I don't think any of the missions then were doing it. I don't know if they are now. JPL would do a regular podcast. I'm sure some of the other centers do. You would look to see what NASA was doing, and the centers, and is that something that you could emulate as well. But they were big on the numbers. It just became all about reaching these really big numbers.

It's great. If you see oh, 5,000 people liked this thing that I posted on Facebook, that's nice, but it's not really teaching them anything. Hopefully maybe a few will dig deeper and be interested enough to learn more.

When it is science that you're trying to convey, it's one level for popular culture and those kinds of things, but when you're trying to convey something that's a little more complex, and you're hoping for people to be more interested, it's just another level. NASA came to focus more on the public outreach and communication aspect rather than the education. I'm sure there's still plenty that goes on within the center education offices, but just not so much at the program level, certainly not like I was doing, and I'm guessing even at the mission level not so much anymore. Priorities come and go and change and evolve.

JOHNSON: Yes. I think especially with education and funding. That was somewhat fluid, especially in the last few years about that funding. One of the things I wanted to ask you about is when any of these education ideas came up, just because now there seems to be a big push to get

girls involved, and the whole push to get women involved in the STEM, STEAM programs. Were there any of those things that you did? Or were you involved in any of them that were especially targeted for girls in school?

ASPLUND: The NASA-wide Solar System Forum developed a relationship with the Girl Scouts of the USA. They did a lot of trainings with Girl Scout leaders across the country to train them in these NASA activities. I think they even developed some new badges. Specific solar system badges. I think they also worked with the universe and I'm sure with Earth science too. That was great. I know that I saw quotes from some of the Girl Scout leaders that they were going to change their whole focus in life and go back to school and get a degree in science because they had become so inspired.

Hopefully many of the girls also, because you often see interviews with some of the women astronauts, and most of them did start out as a Girl Scout at some point. I think the Girl Scout relationship was a really good one. Again it evolved and kind of disappeared but in its heyday it was good. One of my goals, I was asked to serve on a local Girl Scout board here. I agreed to do it mainly because I wanted to make that connection with JPL, because there hadn't been one. Right here where I live in Altadena, which is about 5 miles from JPL, there's a big Girl Scout facility. They just had never really had a connection. That was my goal, was to make sure that there was a connection. Ultimately there were a few JPL missions that did get involved with the Girl Scouts and host some events. I did a couple of things. But on a nationwide basis there was a nice relationship with the Girl Scouts.

I think many of the individual missions had things that had a specific focus to reach girls and women. I can't think of any specific programs right off the bat. But I know in our work

with training the *Space School Musical*, we made a point of reaching some of the organizations that really focused on girls.

At the college level, the education offices at all the centers have nice programs for bringing in interns. There's a lot of that going on, and that's outside of the mission outreach. It would have been nice to have more outreach to girls and women, but the Girl Scout relationship really was a particularly good and wide-ranging one.

JOHNSON: I'm glad to hear that, as a former Girl Scout and former leader. My granddaughter is now in Girl Scouts too. That's great. I know that locally we do some things like with Space Center Houston, which is next to JSC, so that that's where the public goes. They do a lot with Girl Scouts too. That's good to hear. I want to ask you, and this is based on your experience and your position with NASA, but what are some of the lessons learned from Discovery?

ASPLUND: In the areas of education and outreach?

JOHNSON: Yes. In your area specifically and from your perspective of Discovery. You had a different perspective maybe than the scientists and the engineers about what Discovery was doing. What are some of the lessons learned from your perspective?

ASPLUND: That's an interesting one. I'd probably really need to give that some thought because the things that I tried to do as far as developing good relationships and having good partners, you really see the importance of that, of working together. I think one of the strengths was—in fact I did some renovations here at my house, and I was telling the woman who was my designer about

my work at NASA and how we would work with—I mentioned Kay Tobola and Jackie Allen who worked at Johnson.

Kay was a gym teacher in her early days but she developed into a science teacher. Jackie was a geologist but she loved the education aspect of it. We would work in a small group of teams, but everybody had a different background and different interest. It brought so much to the team to have all these different perspectives. My designer, I ran into her years later, and she said, “Shari, I never forgot what you told me about that. Now I make a point of working with people that come from different areas and walks of life to do these house designs and renovations because you want all these different perspectives.”

I think that was mainly it because it would have been easy to sit at your computer and look for ideas and maybe work with the people who were literally in nearby proximity to you. But by going outside and working with people who were from all parts of the country and with different perspectives and different strengths and areas of expertise it just makes the product and everything you’re doing so much richer. That’s a lesson learned as far as the development stages as you’re trying to create and reach the public.

I guess another one that we really learned was don’t think that you know what your public wants. Ask them rather than trying to develop a product that you think is going to be the coolest thing ever, and a teacher can’t use it, it’s not of interest to them. Maybe it’s cool but I can’t put that in my curriculum. It’s funny, because we would do surveys when we would go to the National Science Teachers Association annual conference. We had a NASA booth. But in order to get our free NASA goodies we often would do a survey and ask questions and try to get all these answers on the kinds of things they’re interested in. What would be the most helpful? What can we do?

But then months would go by and I'd say, "So what happened to all those surveys? Did anyone compile them? Do we know what the answers are? How can we use those to inform what we're doing?" Nobody ever looked at them, which I found to be incredibly frustrating. I'd say, "Well, where are they? We need to do that." When I did my annual teacher workshop and we always did a survey at the end, I did read them. I would definitely try to accommodate any suggestions that made sense. You are always looking for feedback. But in addition to asking for it you need to go back and actually try to see if you can use the suggestions as you develop products. Because you could create the greatest product, but if nobody's interested in it or just can't use it because it doesn't fit into their curriculum, then the value is lost. The feedback from the people who would be using your product ultimately is an important thing to have and to pay attention to.

JOHNSON: The Discovery Program, what kind of impact do you think it had on education? You mentioned that some of these people, Girl Scout leaders, decided they wanted to be a scientist because of this information. But is there any other impact do you think on education in general from Discovery?

ASPLUND: Because there were so many missions and so many different approaches to education and the outreach, reaching so many people, whether it's a public event we all worked at—was it 2008 when it was NASA's 50<sup>th</sup> anniversary, and there was a huge event on the [National] Mall in Washington, DC? The annual Smithsonian Folklife Festival honors three different entities each year, and NASA was one of them. I worked at that booth for about four days. Thousands of people come through and you're talking to them and showing them cool things. You're just

hoping that it sparks something. You're hoping that next time they see something on the news about a NASA mission or something at Mars or even an astronaut that wasn't our area of NASA, but still it's what people see most of, you just hope that they're a little more science-literate if nothing else. I would hope that through all the work that all the missions did there is a part of the public and students that are a little more science-literate and interested because of it. Certainly I know there are some who chose a science field because of what they found out. But just even in a much wider-ranging area just to think that people developed an interest.

I would talk about the Deep Impact mission and the fact that it plowed into this comet Tempel 1, and then years later—the scientists couldn't assess the depth of the crater that it made, and there had been a contest for people to guess. But ultimately, they really couldn't tell, because it kicked up tons and tons of dust that all settled back down. They never really saw a crater, which is what they thought they would do, which just tells you that's why we're doing these things, because we can guess, theorize, but we don't know. Then they repurposed the Stardust spacecraft after it did its main mission. It flew by comet Tempel 1 many years later to see what that area looked like now. I would tell that story at a lot of these public events and I would have a little model of the comet and the spacecraft, and people would just hang on the words. They would be so interested.

That was another lesson learned for us, storytelling. When you're turning it into a story, and just showing just some of the interesting aspects of it beyond the basic science and what they were hoping to learn. It's such a learning process to try to really assess what is the best way. A lot of people got into storytelling. Many of my colleagues would go to the international storytelling festival in Jonesborough, Tennessee, every year. I know the Mars team would work with storytellers. There was a storyteller named Syd Lieberman who talked to the folks that did

the Mars Pathfinder mission. He came up with the most wonderful story. He came to JPL and told it in person in [Theodore] von Karman Auditorium, not only to the team members who he had talked to to create the story, but to the rest of us. You were practically in tears by the end, he just turned it into such a beautiful story. That kind of an approach is so compelling but you need to learn how to do it.

When you have compelling ways to reach the public, you just really hope that it reaches them in a way that will make an impact, will create a spark.

JOHNSON: That's definitely a gift to be able to turn around and tell that story that way. Thinking back over your career with NASA and with Discovery, what do you think was your biggest challenge?

ASPLUND: Probably that same kind of aspect of really reaching the people in a way that would have an impact. Trying to find ways to get teachers, to reach them, to get them to want to teach our science. To really make that impact. You're working to create things that you want to inform, educate, engage, and are you doing it? How are you doing it? What is working better than isn't? It's just all those kinds of challenges of always trying to find a new way, a different way, a better way of trying to reach the audience and bring the excitement of NASA and all these missions to people.

It's so easy to hear it on the news and just not even pay attention. You just want to reach people at a level where this is really cool, you want to check it out.

JOHNSON: What would you point to as something that you're most proud of?

ASPLUND: I would say my *Space School Musical*. I loved that.

JOHNSON: It was definitely a different type of project to work on. I can understand that. Do you still hear from people about it? Are they still doing it in schools?

ASPLUND: I think they're still doing it, yes. In fact Kellee, she's moved on to different things, but she was doing some work with some schools in the Palm Springs area. I got a text from her, it was before COVID, out of the blue, that there was a production that night. Could I come down? I couldn't; I was on vacation. But yes, it's still out there. I still have a few copies of the DVD, and on occasion I'll meet a teacher and give them out, or at least point them to the website, because it's available on the JPL website as well.

JOHNSON: It's nice to have that kind of legacy too, something that you worked on that's still affecting kids.

ASPLUND: Yes. The fact that it's even still on the JPL website to me was exciting.

JOHNSON: You never know with websites. Is there anything we haven't talked about that you want to mention?

ASPLUND: We've touched on quite a few things. I think that the education and public outreach requirement for the Discovery missions added a richness to the science of the mission, which



added to our cumulative knowledge about the origins of the solar system. That's what so many of them were really looking at, but by bringing the public and teachers and students in to try to share in the excitement of the mission and to try to engage them was an important thing to engage future scientists, future engineers, the future creative people that can contribute in so many different ways.

I hope that the goal was accomplished. It's hard to really assess. You can collect numbers, how many saw this or were exposed to that or attended this. But it doesn't really convey the depth and the bottom line of how many people were affected in one way or another. Their interest was piqued. I think that is a huge legacy of the Discovery missions, the requirement to include an education and outreach component. It's like so many things. If it's required, you do it, if it's not you don't. It was done to a level that it wouldn't have been done otherwise. At the program level, it was a privilege to work with all the missions and help them in whatever ways I could, supporting their events, adding to some of their publications.

I worked with a few mission folks, and we had an article published. It's a publication called *Science and Children* which is for elementary teachers. It's part of the National Science Teachers Association. They put out a call for articles that illustrated patterns. We wrote an article based on that Art and the Cosmic Connection activity showing how that demonstrated patterns in a fun artsy way while teaching the science. Working with all the missions was great, because each one was so different. As more and more kept getting added, it was just a wonderful opportunity for me.

I was so grateful to have been able to do that for so many years and to work with so many great people, many of whom I'm still in touch with. Again, a lot of gratitude to Dave Jarrett, who was always promoting me to whoever the next program manager was. I did get an

Exceptional Public Service Medal about five years ago from NASA Headquarters that Dave nominated me for. Apparently when he did, they said, “But she’s at JPL. She’s not at Headquarters.”

He said, “Well, does that make a difference?”

They said, “Well, I guess not.” A lot of gratitude to Dave.

JOHNSON: Did your position continue on after you retired?

ASPLUND: Not really. I mentioned the website was in the midst of being redone and not completed. That went to Marshall. By then they were calling it education and communication. It was no longer called public outreach. Things were changing. We weren’t really supposed to be doing education anymore, which was sad. The focus was the communication. Again the social media and having a presence at large public events. It’s just a whole different focus. I felt like for me it was a really good time to retire. I literally got reprimanded for agreeing to do an educator workshop on a Saturday through the JPL Education Office that they had asked me to do. I was not supposed to be doing education anymore. I thought really? I’ve agreed to come in on a Saturday and do this and you’re telling me I shouldn’t have.

It was getting frustrating. The timing was good for me to retire. The people at Marshall, their approach to the outreach for the program office was different. They did some public events, and some of the bigger ones that the Marshall center was doing, like International Observe the Moon Night they would participate in. Just as I was able to participate in some JPL-wide things, they would participate in more Marshall-wide events.

I don't see posts on their Facebook page a lot. But I'm sure they're still posting regularly on Facebook. I would imagine they probably have other social media accounts. I think that's become the focus. They're not doing the kinds of things I was doing anymore. Things have evolved and changed.

JOHNSON: It's definitely something that's happened. Everything has evolved and changed. If there's not anything else you want to add we can end for today. I appreciate you agreeing to talk to me.

ASPLUND: Sure, I enjoyed talking to you. That was fun. Thank you for your time.

[End of interview]