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## Where are my People? A Historical Analysis on NASA's Equal Opportunity Initiatives

Heather D. Smith

University of North Florida, N00487652@unf.edu

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Where are my People?

A Historical Analysis on NASA's Equal Opportunity Initiatives

Heather D. Smith

Master of Science in Communication Management

School of Communication

University of North Florida

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## **Where are my People?**

### **A Historical Analysis of NASA's Approach to Equal Opportunity Initiatives**

Heather D. Smith

University of North Florida, 2022

#### **Abstract**

This thesis uses historical analysis to review how the NASA Communication Office published information about its equal opportunity efforts from the 1970s through the 2010s. NASA press materials were examined using various keywords to search for programs and initiatives to recruit and maintain women and minorities in the space agency. The idea to create internal programs to increase women and minorities within NASA appeared in the mid-1970s, but the agency did not report initiatives until the late 1980s and 2010s, when the keywords *women*, *minorities*, and *equal opportunity* were mentioned most often. NASA continues to develop and implement diversity programs to assess the workforce development and inclusion initiatives for the 21st century.

## Where are my People?

### A Historical Analysis on NASA's Equal Opportunity Initiatives

#### **Chapter One: Introduction**

*Star Trek: The Original Series* showed that a diverse crew could work together to solve problems (Pearson & Davies, 2014, p.167). *Star Trek* debuted on television in 1966 during the Civil Rights era. Nichelle Nichols, an African American actor, portrayed Communications Officer Nyota Uhura of the U.S.S. Enterprise. Nichols felt undervalued on the *Star Trek* set due to less on-screen time than her more prominent male co-stars, but Dr. Martin Luther King, Jr., convinced her not to quit the job because it was influential (Izadi, 2016). The role of Lieutenant Uhura was a constant presence for those who had not seen a Black female character prominently featured in a non-domestic position (Jet Magazine, 1994; Martin, 2011). The transition to her real-life role with NASA influenced the agency and public opinion to hire a diverse workforce (Women In Motion, 1977; Shayler & Burgess, 2020). Her work on *Star Trek: The Original Series* influenced generations of people, especially young women and people of color (Shayler & Burgess, 2020, p. 42). Nichols influenced many former astronauts, including Fred Gregory, Judy Resnik, and Charlie Bolden, who recognized Nichols from television (Knox, 2012). Nichols saw the need, and she had a plan. Nichols created the Women in Motion organization and signed a six-month contract with NASA to help find more women and people of color to be included in its 1978 astronaut class and workforce (Women In Motion, 1977).

Nichols' work with WIM was important because NASA failed to recognize the significance of news reports about women's rights, poverty, and Civil Rights as the space agency began its many projects, from Mercury and Gemini to Apollo (Perry, 2019). The agency focused more on technical work than societal news. Internal documents suggested that addressing and

understanding those social issues were not a priority for the agency (NASA Historical Data, 1972). Before Nichols prompted NASA to employ a more diverse workforce in the late 1970s, there were the Mercury 13 astronaut training participants, the failed astronaut selection of Edward Dwight, and protests from the Southern Christian Leadership Conference. Those three events occurred in the first ten years of NASA's existence. (Ackmann, 2003; Greene, 2019; Perry, 2019). The timing of these events is important because NASA promoted itself as an agency for all of humanity but could not address the discriminatory issues here on Earth.

First, defining what a communication manager is gives an overview of how NASA wrote about its real-world approach to promoting diversity through its communications during the Civil Rights era and beyond. A communication manager within the NASA Communication Office understands the position's responsibilities, including publishing documents. A communication manager must listen to diverse opinions to understand how the agency should tell a story (Grunig, 2013, p.151). Communication managers have formal "decision-making authority for communication policy" and are responsible for the success or failure of those policies (Grunig, 2013, p. 74). Public relations managers, a position under communication management, "direct the creation of materials that will enhance the public image of their employer," (Bureau of Labor Statistics, 2021, p.1) and reviewing the information published by NASA shows what the agency considered important over a period of time. The information is vital because documents shape what people know about the inner workings of NASA. This study will use the historical analysis methodological approach to examine what NASA's communication managers published from the early 1960s to 2020 concerning the agency's diversity initiatives. The results will show what managers published for diversity initiatives, reveal the morale of NASA employees, and establish how the organization responded to internal or external equal opportunity issues.

## Chapter Two: Literature Review

The literature review will examine the importance of communication offices in general and the communication office of NASA specifically. The literature review will also discuss the importance of the agency in the age of Civil Rights. The literature review will also highlight key opportunities NASA missed during the agency's early years.

Examining the literature of historical information from press materials, annual reports, and news articles adds context to understanding the space agency's equal opportunity efforts. These documents explain how NASA communicated its programs to its employees and the public. Among the few scholarly materials about NASA and the “social aspects” of the agency are Calvino’s studies on race, gender, and personnel history (Calvino, 2020, pp. 17-18). The thesis of Ruth Calvino, a Clemson University graduate, highlighted incidents of racial discrimination at NASA between 1974 to 1985. The public affairs officers for NASA released annual reports, such as the *NASA Activities* and *NASA Performance* reports to highlight what the agency had accomplished. The literature will also review accounts from women and minority trailblazers at NASA who shared their experiences and perceptions of the agency. The review begins with a discussion of communication managers who are to develop the organizational image and find the best ways to reach audiences.

### Communication Managers

Communication managers, such as those in public relations, also write press releases, prepare information for the media, and handle internal communication by releasing newsletters (Harris, 1986, p. 19; U.S. Bureau of Labor Statistics, 2021). Communication researchers noted that such figures in “movies, novels, television programs, games, and other media” (Weigold et al., 2007; Science Communication Scholarship, 2007, p.37) might be a primary source of public

understanding of science and technology. NASA's press materials, annual reports, and news articles add context to understanding the agency's equal opportunity efforts. These documents explain how NASA communicated about its programs.

### Sharing Information

The National Aeronautics and Space Administration formally opened for business on October 1, 1958 (Garber, 2005). The Space Act of 1958 mandated NASA to "provide for the widest practicable and appropriate dissemination of information concerning its activities and results thereof" (Eisenhower, 1958, p. 426). Early public engagement of the NASA Communication Office was published in *Aviation Weekly* advertisements (Lloyd, 2021). The first communication office was called the Public Information Office. Walter T. Bonney was the first lead of the Public Information Office (PIO). His 1959 memo stated, "in servicing the press, the PIO seeks to function as a precision-ground mirror, faithfully reflecting the activities of NASA" (Scott & Jurek, 2014, p.17). The NASA Public Information Office was renamed the NASA Public Affairs Office after the Challenger explosion in 1986, when a "more intensified and more timely form of internal communication program" was needed for NASA employees and journalists who craved immediate information about the tragedy (McCulla & Kukowski, 1990, p. 214). In 1986, NASA published agency-wide monthly publications and newsletters for all field centers. The Office of Communication is based at NASA Headquarters in Washington, D.C. There are 10 "field centers" in other states with their own communication offices (Garber, 2005). Employee morale became a problem because coverage of the Challenger accident was "erroneous, controversial, or confusing" (McCulla & Kukowski, 1990, p. 214). To address this problem, NASA established the Internal Communication Office within the Office of Management, which developed a program specifically for employees (McCulla & Kukowski,



1990, pp. 214-215). Externally, a journalist said that the media had to “dig out the information on their own,” which led to a lack of trust post-Challenger (Lloyd, 2021, p.46). NASA was transparent in disseminating information to journalists after the Columbia accident in 2003 because the agency had learned from its mistakes in 1986 (Lloyd, 2021, p.47). Morale was low within in agency during both shuttle disasters. Employees would challenge management, but their concerns were ignored (Lloyd, 2021). NASA Communications introduced new methods of engaging audiences beyond press releases. An increase in digital connections such as podcasts, videos used on various social media platforms, and influencers help spread the word about upcoming missions (Williams, M. F. 2012).

The communication manager and the communication team collect the data and decide how to release it (U.S. Bureau of Labor Statistics, 2021). Each NASA center has a communication department. A journalist said some of the centers were “very public relations focused” while others were “more transparent” (Lloyd, 2021, p. 34). They are responsible for creating the tactics to reach audiences (Bronn, P.S., p. 2014). Each tactic is developed to support a particular NASA center. For example, the Jet Propulsion Laboratory in Pasadena, California, focuses on planetary missions. This means their public affairs team will not focus on human spaceflight missions. Launch and recovery operations are the focus at the Kennedy Space Center in Titusville, Florida. Consistent press conferences inform the press about pre-flight and post-flight missions. Three former public affairs officers said they were given free rein to create materials (Lloyd, 2021). The public affairs office promotes an open relationship between scientists and engineers with journalists. The public affairs office created a partnership with journalists by giving them direct access to the space program (Bock & Dunbar, 2021).

Miscommunication: The Background of What Could Have Been: A Chronological Outlook

*Ed Dwight*

When NASA announced plans to send astronauts to space, public interest grew about who would be selected (Garber, 2005). NASA developed Project Mercury as a series of flights to win the Space Race against the Soviet Union. The Soviets had successfully launched Sputnik, the first artificial satellite, into orbit in 1957. At the beginning of NASA's inaugural program (Project Mercury), the agency faced scrutiny on April 12, 1961, when the Soviets launched cosmonaut Yuri Gagarin into space. Gagarin became the first person in space, and NASA responded three weeks later as American Alan Shepard became the first astronaut to orbit the Earth. Before the Mercury 7 flight, NASA selected the first group of astronauts, with most candidates coming from test pilot schools across the United States (Garber, 2005). One of them was Edward Dwight, an African American test pilot based at the Aerospace Research Pilot School, which famed pilot Chuck Yeager directed.

In September 1962, President John F. Kennedy gave a speech at Rice University about putting a man on the moon "in this decade [the 1960s] and do the other things, not because they are easy, but because they are hard" (Kennedy, 1962). The Kennedy Administration recognized the importance of showing that Dwight, a Black man with an advanced aeronautics degree from Arizona State University, could become one of the first astronauts for America's space program (Jackson, 2020; Perry, 2019). The administration recognized that Black Americans could see what they could achieve. Dwight was one of twenty-six applicants and the only African American in the pilot training programs. He was among the pilots recommended by the Air Force to NASA as a potential astronaut. All of that ended when NASA selected 14 applicants from a field of 136 people for Astronaut Group 3, and Dwight was not on that list. Dwight's space career was over before it began (Fenrich, 2015).

During a press conference in 1961, Mercury 7 astronaut Gordon Cooper told reporters that NASA had not found a qualified African American to become an astronaut. In pilot training, David Scott, a classmate of Dwight's, was selected to be in Astronaut Group 3 and eventually walked on the moon during the Apollo 15 mission (Jackson, 2020). After years of experience, Dwight resigned from the Air Force in 1966. In his case, the space agency moved on once the public lost interest (Green, 2019).

Guion "Guy" Bluford, the first African American astronaut, did not fly until the space shuttle era in 1983. Two decades of training are between Dwight and Bluford. The news of Dwight's non-selection has only come to light in recent years. NASA missed the opportunity to select Dwight among its first astronaut class (Jackson, 2020). Dwight never received a reason why he was not selected among the first NASA astronaut groups.

*Rev. Ralph Abernathy*

The Civil Rights era coincided with the Project Apollo missions planned for landing on the Moon during the 1960s. Leaders of the Black community pointed out the hypocrisy of spending money on the future while neglecting the needs of one-fifth of the nation (Fenrich, 2015; Heppenheimer, 1999). In 1969, the Southern Christian Leadership Conference, led by Rev. Ralph Abernathy, traveled to the Kennedy Space Center launch site to express concerns about the cost of the \$25.4 billion Apollo program. The SCLC wanted NASA to recognize that the agency avoided real-world problems such as poverty, racism, and hunger (Greene, 2019). The agency was innovative with technologies but "socially detached" when problems did not have a technical solution (Calvino, 2020, p.22). Abernathy spoke about how one-fifth of the nation lacked "adequate food, clothing, shelter, and medical care" (Heppenheimer, 1999). According to the U.S. census, the poverty rate for African Americans was 31 percent, compared to 9.5 for

white Americans in 1970 (U.S. Department of Commerce, 1970). Abernathy called the Apollo program a “distorted sense of national priorities” (Greene, 2019, p. 2). The evening before the Apollo 11 launch, the protestors met with then-NASA Administrator Thomas O. Paine. During the 20-minute encounter, Paine listened to their concerns and highlighted the Apollo flights' purpose. Administrator Paine spoke to Abernathy about how the lunar missions could inspire the country to solve problems together, saying, “I want you to hitch your wagon to our [Saturn V] rocket and tell the people the NASA program is an example of what this country can do” (Greene, 2019, p. 2). Paine told Abernathy and the SCLC members that if the problems of poverty could be solved by not pushing a button to launch the Apollo 11 astronauts to the moon, he would not push the button. In their brief encounter, Paine also asked Abernathy to pray for the safety of the Apollo 11 astronauts, which ended with Abernathy agreeing to do so by shaking hands (Heppenheimer, 1999).

### *The Female Exclusion*

One of the other major blind spots of America's space agency was the failure to address how women were included in advancing human spaceflight (Foster, 201). The Mercury 13 participants were women who trained at the same facilities as the Mercury 7 astronauts, but NASA did not recognize them as candidates. The Mercury 13 astronaut training program was ignored by most of the public and the space agency in 1961 (Ackmann, 2003; Baldwin, 2018). During a subcommittee hearing on gender discrimination in 1962, Mercury 7 astronauts John Glenn and Scott Carpenter testified that women could not qualify to be astronauts. NASA required potential applicants to have flight hours with a test pilot school and have a college degree. Women were not allowed to participate in test pilot schools (Garber, 2015). NASA and President Dwight D. Eisenhower, during the agency's formation in 1958, thought that the best

astronaut candidates were pilots. Realizing that there would be too many people to apply, Eisenhower suggested that the pilots have military experience and an engineering degree (European Space Agency, 2013). Women had been excluded from flying planes for the military since the end of the Women's Air Force Service Pilots program in 1944 (Ackmann, 2003; ESA, 2013). This requirement altered the astronaut selection process. However, Jerrie Cobb and Janey Hart, members of the Mercury 13 program, testified that their extensive training was the same as the Mercury 7 astronauts' training (Ackmann, 2003; Baldwin, 2018). The Mercury 13 training sessions ended abruptly because the U. S. Navy denied the trainees access to its testing facilities in Pensacola, Florida, in 1963 (Administrator, 2016). The reason the Mercury 13 participants received attention was that the 26-year-old Valentina Tereshkova's status as the first woman to orbit the Earth when the Soviet Union launched her in a Vostok 6 capsule on the early morning of June 16, 1963 (Gerber, 2015). In 1972, an amendment to the Civil Rights Act of 1964 allowed women to qualify for space travel, but they were not admitted into the U.S. Navy flight training program until 1973 (ESA, 2013). U.S. women were admitted to the 1978 astronaut class 15 years after Tereshkova's orbital flight (Shayler & Burgess, 2020).

The examples previously mentioned in the *NASA Historical Data Book* report admitted that the agency had no "accurate reporting system," (NASA Historical Data Book, 1972, p. 65) for the positions of minorities and women until 1972. This information was published in the *NASA Historical Data Book* because the agency hired Ruth Bates Harris to investigate the number of minorities and female employees at the agency. As the NASA Equal Opportunity Office deputy director in the early 1970s, Harris became the highest-ranking Black woman at NASA. Harris was terminated a year later, in October 1973, because NASA Administrators disagreed with the report she published about the discriminatory hiring practices within the

agency (Calvino, 2020). Harris was rehired as the deputy assistant administrator for NASA Public Affairs for Community and Human Relations in 1974 (Calvino, 2020; McQuaid, 2006).

Outside of NASA, The Equal Employment Act of 1972 was released on the heels of the Civil Rights Act of 1964 to address the discrimination against women, African Americans, and other minority groups in American society (Foster, 2011). Despite the Civil Rights Act, NASA only recorded employment by pay grade, type of position, and if those jobs were permanent or temporary. Certain communication and diversity-related programs were created in the mid-1970s. The NASA Public Affairs Office is mentioned as early as 1977 (NASA Activities, 1977, p.19), and a NASA Community Affairs Division was also revealed (NASA Activities, 1978, p.15). The Federal Women's Program was briefly mentioned within a caption under a photo (NASA Activities, 1977, p.7), and a publication called *Minority Profiles* was published (NASA Activities, 1977, p. 18). However, there was no definitive source of when these sub-departments were created within the agency.

### The Influence of One

New hiring practices within NASA were implemented at the dawn of the space shuttle era in 1978. Nichols and her organization helped with a contract with the space agency by recruiting applicants for the astronaut class of 1978 (Women In Motion, 1977, p.2). NASA awarded the Women in Motion Production Company a \$49,900 contract to inform minority applicants of the Shuttle Astronaut Recruitment Program in 1977 (NASA Activities, April 1977, p.14). Nichols was tasked with contacting “students at minority and non-minority schools at the college and university level (NASA Activities, May 1977, p.14). In a speech to Goddard Space Flight Center in March 2012, Nichols said that she asked herself, “Where are the women? Where are the people of color?” when noticing the lack of diversity in NASA’s astronauts (Garner, Goddard

View, 2012, p. 3). Her portrayal of an African woman in a leading position on a spacecraft continued to be influential.

### Getting Things Right...Sort Of.

The influence of the Women In Motion organization resulted in NASA selecting Sally Ride and Judith “Judy” Resnik in 1978 (Women In Motion, 1977, p.4). Both would be in the first astronaut class that included women, almost two decades after the Mercury 13 training program. Six of the 35 applicants selected were women (Women In Motion, 1977, p.20). The other female candidates were Anna Fisher, Shannon Lucid, Rea Seddon, and Kathryn Sullivan. Almost 8,000 people applied to the astronaut corps in 1977, with nearly 1,500 being women (almost 20%). Before Women In Motion’s involvement with NASA’s recruitment efforts, 75 of the 1,500 applicants were women, around 5% of total applicants (Women In Motion, 1977, pp. 19-20). According to a report published by the organization in 1977, the recruitment program increased female applicants by 15% during its six-month contract with NASA. During Women in Motion cross-country recruitment tours, female applicants said they felt cheated by the system, which steered them away from technical careers (NASA Astronaut Recruitment, 1977). In the history of human spaceflight, 72 women have flown to space compared to 524 men (Garber, 2017).

In an interview in 2002, Ride spoke about an incident while preparing for STS-7, her first space shuttle mission in 1983. In an interview with the Johnson Space Center History Office, she described the encounter: “I remember engineers trying to decide how many tampons should fly on a one-week flight; they asked, ‘Is 100 the right number?’ She told them that was not the correct number, but the engineers also designed a personalized makeup kit without knowledge of personal hygiene items for women (Ride & Wright, 2002, p. 36).

Minorities who were highly qualified hesitated to apply to NASA programs because of suspicions that they would continue to be excluded (Fenrich, 2015; Greene, 2021). However, project managers encouraged applicants to apply with the help of Women In Motion and to overlook the inequities of the past (NASA Astronaut Recruitment, 1977).

Guy Bluford, Ron McNair, and Fred Gregory were the first African Americans to become astronauts.

Mae Jemison, the first African American woman in space, told an interviewer that she had been annoyed that there were no women astronauts while growing up. In the 1960s, Black-owned publications like *Jet Magazine* said that NASA had the “poorest minority hiring records among U.S. agencies” even as Black Americans worked on the Apollo missions (Smithsonian, 2019, p.5). NASA officials did not understand that people felt left out during the Apollo era and later the Space Shuttle era, Jemison said. “People did not see themselves, so they did not see the connection back to them” (Makers, 2014, p.1). The Women In Motion program also recruited Ellison Onizuka, the first American of Asian descent to fly for NASA during the STS 51-C mission in 1985. Onizuka, McNair, Resnik, and Ellison were aboard the STS-51L mission on the final flight of the Space Shuttle Challenger (Dunbar, B., 2017).

#### Something New: A Fresh Look of Diversity in NASA

NASA officials said stories such as those of Pam Melroy, Charlie Bolden, and Michelle R. Jones show that when NASA promotes women and people of color to lead administrative positions, the agency can make those changes throughout its various offices, including the NASA Office of Communication (Office of Diversity and Equal Opportunity, 2015).

Deputy administrator Melroy was appointed by the Biden Administration in 2021 (McGuinness, 2021). She is a former space shuttle astronaut and one of two women who



commanded a mission (LaGuardia-Kotite, 2011). Melroy flew on three space shuttle flights and spent 38 days in space. She is also a former Air Force pilot with almost 6,000 flight hours.

Melroy's official NASA biography explains her experience is invaluable to the agency because she is responsible for "laying the agency's vision" for national and international government officials (Bock, 2021, p. 1).

Like Melroy, Bolden is a former astronaut with military experience (Dorr, 2009).

However, Bolden is the only African American to hold the title of administrator on a permanent basis (White House, 2009). Gregory, another former astronaut, was acting administrator during the George W. Bush administration. Bolden flew on four space shuttle missions as an astronaut, commanding two of them. His leadership as an administrator saw the transition from the end of the Space Shuttle Program to the full utilization of the International Space Station and the beginning of the commercial space era (Wilson, 2015).

NASA promoted Michelle R. Jones, the Chief of Communications at Goddard Spaceflight Center, in 2015. Jones is the first African American woman to hold a leading communication position at the agency. Her responsibilities include managing a staff of 60 by implementing programs to inspire and engage students, educators, and the public. Jones is also the GSFC leader of the Diversity Dialogue Project of the Diversity and Inclusion Committee. Jones became an intern with the NASA Cooperative Office Experience program at GSFC as a high school senior. Based on NASA's previous success, Jones suggested that NASA should increase community outreach, specifically with its public affairs and education programs to meet the needs of minorities. In a 2021 interview, Jones said that once she entered a full-time administrative position at GSFC, she disengaged from her work because of how she was treated due to her age and skin color. After only two years, she switched from the previous position and

applied to the NASA Communications Office. Jones said that “diversity is important for NASA to achieve success because, without it, the agency will never realize its full potential” (Demme, 2021, p. 2).

The news chief at GSFC is Dewayne Washington, the lead manager of the newsroom. Washington’s responsibilities include assessing the quality and accuracy of materials created within the center. Before his promotion to news chief, Washington was a senior public affairs officer responsible for national and international media plans for GSFC. He also worked at Kennedy Space Center in Titusville, Florida, and Wallops Flight Facility in Wallops Island, Virginia.

The NASA Office of Diversity and Equal Opportunity reported that as of 2020, African Americans account for 11 percent of the NASA workforce, and women account for 34 percent of the NASA workforce (NASA, EEO Workforce Summary, 2020). The office also concluded that Asian Americans and Pacific Islanders made up 8.4 percent of the workforce. That is also the same percentage as Hispanics and Latinos. However, the American Indians and Alaskan Natives employees had the lowest representation of one percent among the workforce. The report by the diversity office was found on the Diversity and Equal Opportunity NASA website listed under data and analytics.

This current study will show how NASA has used internal communication in the *NASA Activities* books and the other publications to talk about its work and how the organization views itself. In this context, NASA recorded events that would interest its employees. The first page of *NASA Activities* described it as a monthly publication “for the agency’s employees” (NASA Activities, 1977, p.2). These documents were published by the Office of Public Affairs in

Washington, D.C. This is important because, beginning in the 1970s, the space agency constructed these reports to show what the agency was doing at each field center.

The table of contents of each monthly issue of the NASA Activities publications are clues to what NASA thought was necessary from 1972 to 1990. There were no publications of NASA Activities for a few months from 1986 to 1990. By looking into the reports, the research seeks to understand how NASA developed a process for a particular issue, such as equal opportunity, and when the agency redirected itself to thinking about diversity.

This study investigates the following questions:

- Which in-house publications did the NASA Public Affairs Office (PAO) use to disseminate information about the agency's equal opportunity initiatives, specifically for women and African Americans?
- How often did the NASA PAO write about equal opportunity initiatives?
- What are the equal opportunity initiatives' effectiveness, by year and decade, according to the goals and vision described by the agency?
- What were the words used to describe diversity-related issues?

### **Chapter Three: Methodology**

This study aims to understand how NASA Public Affairs Office approached equal opportunity initiatives. This study collected data published over a 60-year period from 1958 to 2020, using the agency's published documents as primary resources. Historical analysis is a "method of the examination of evidence in coming to an understanding of the past" (Thorpe, 2007, p.108). This type of analysis requires the researcher to review the evidence obtained in the documents, establish facts chronologically, and establish a cause and effect to capture "historical patterns and an explanation of them" while reviewing the documents. (Thorpe, 2007, pp. 108-

109). Annual reports show “valuable information on how an organization is performing” (Stobierski, 2020, p.2). This research aimed to find relevant information regarding any mention of minority programs with statements of NASA personnel in communication, public affairs, or equal opportunity offices. The items of analysis were contained in three sources: *NASA Historical Data Books*, *NASA Activities* books, *NASA Agency Financial Reports*, and *NASA Performance and Accountability* reports (Table 1). The reports capture the agency’s internal and external communications.

The *NASA Historical Data* books were published between 1969 and 1973. The *NASA Activities* books were published between 1974 and 1990, and the NASA performance reports have been released and uploaded to the agency’s primary website every year since 1997. The NASA History website uploaded data between 1990 and 1997 under the title of *NASA Historical Data Book, Volume VIII*. Those reports had been missing from previous publications. There are also reports listed as *NASA History Year in Review*, which began in 1994 until 2009 on the NASA History website. However, the *NASA History Year in Review* was not used because the publications list the achievements of the NASA History Office, such as how many technical books were published and how many book requests were made by academic institutions or the public.

The *NASA Historical Data Book, Volume IV*, is an online archive published by the NASA History Office. Chapter three of this volume focuses on NASA personnel from 1969 to 1978. The fourth volume contains a list of tables of employees by position classification (trade, clerical, administrative, scientific, etc.), permanent and temporary status, minorities by occupation (1972-1975), and gender (listed as *Female Permanent Employees by Occupation*). This publication was vital because it lists the number of NASA employees from 1958 until the

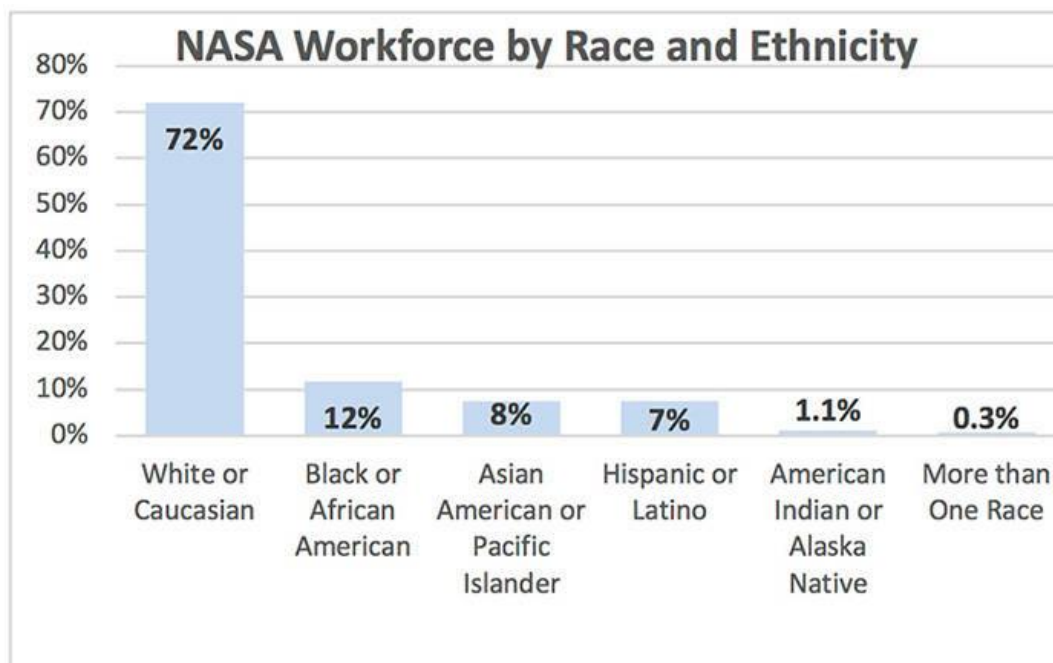
1970s, although it does not include the site of their employment. The *NASA Activities* books detail NASA-related events. Both sources provided other information about NASA employees during the agency's early years.

Table 1: NASA Publications by Name and Year Published

Decade	Presidential Administration	Year	NASA Reports per year	U.S. Human Spaceflight Events
1960s	Dwight D. Eisenhower John F. Kennedy  Lyndon B. Johnson Richard M. Nixon	1969-1973	NASA Historical Data Book releases began in 1969  NASA Historical Data Book, Vol. IV (1969-1978)  NASA Activities began in 1974 (No. of publications listed/year)	1958: NASA established 1958-1963: Project Mercury  1961-1966: Project Gemini 1968-1972: Project Apollo 1973: Skylab
1970s	Richard M. Nixon Gerald R. Ford James E. Carter	1974 1975 1976 1977 1978  1979	12 11 12 12 12  12  NASA Historical Data Book IV ended in 1978  12	1975: Apollo-Soyuz  1978: Astronaut Group 8  1979: Skylab ends
1980s	Ronald W. Reagan	1980 1981 1982 1983 1984 1985 1986 1987 1988 1989	12 12 12 12 12 12 8 5 8 9  NASA Historical Data Book Vol. VIII (1989-1998)	1981: Space Shuttle first orbital flight  1986: Space Shuttle Challenger accident
1990s	George H.W. Bush William J. Clinton	1990  1991-1999	6	1994-1998: Shuttle-Mir Program
2000s	William J. Clinton George W. Bush		NASA Performance and Accountabilities Reports	2001: International Space Station construction begins  2003: Space Shuttle Columbia accident
2010s	Barack H. Obama Donald R. Trump		NASA Agency Financial & Performance Reports	2011: Space Shuttle Program ends
2020s	Joseph R. Biden		NASA Agency Financial & Performance Reports	2010: Commercial Space era

The *NASA Activities* books were published between 1970 and 1990, and they were available in online databases, the University of North Florida (UNF) library, and the University of Central Florida (UCF) library. The hardbound *NASA Activities* books cataloging activities between 1973-1976 and 1981-1990 were available at UNF. The hardbound copies of the *NASA Activities* books from January 1977 to December 1981 were retrieved from UCF via the interlibrary loan system. The *NASA Activities* books from 1974 to 1990 were also available online through the University of North Florida's One Search database. Each financial and performance report dating back to 1997 shows the demographic background of each employee. This information gathered by the researcher was kept in computer files listed by year with a screenshot of each instance of the demographics or diversity programs created by the space agency.

Table 2: Sample of *NASA Data and Analytics*, Office of Diversity and Equal Opportunity (2019)



The researcher used a different method for the hardbound copies of the reports. For example, the researcher recognized a picture featuring a woman speaking for the Equal

Opportunity Program, now called the Office of Diversity and Equal Opportunity (ODEO), which was found in the January 1977 NASA Activities book. Keeping this instance in mind, the evidence of the program existing during the time shows that NASA developed it (NASA Activities, 1977, p.5). NASA developed the Equal Opportunity Program between 1971 and 1972 (Calvino, 2020, p. 39). There is also a brief mention of who was hired in the public affairs office before it was changed to the Office of Communication. There is evidence of a publication called *Down To Earth- A Women's View of Space* that is also analyzed because it would help to see the female perspective of NASA during that decade.

### The use of keywords

The keywords used in the methodology were Negro, colored, communication, black, discrimination, race, women/woman, black woman, and any other combination or variation of those words. The keywords most used were women, minority/minorities, and equal opportunity. *Public affairs* also yielded some results. The word *minority* was also used to describe small businesses and the contracts made with NASA during the 1970s (NASA Activities, Nov. 1976, p.17). Other instances that used *minority* were combined with schools or institutions. In one example, the word *black* appears in parenthesis to describe Chicago State University (NASA Activities, April 1979, p.27). The term *minority institutions* later changed to HBCU while discussing outreach and recruiting programs in later issues of the NASA Activities publications. Also, while searching with the keyword *minority*, the researcher noticed that *minorities* appeared more often. The keyword *women* yielded the most results while searching the publications.

The words Negro, colored, and race did not appear in any of the NASA publications. The term *black woman* appeared twice while describing Dr. Mae Jemison (Gawdiak & Shetland, Oct. 1991, P.135). The word *communication* appeared more frequently with satellite communication



topics. The words *public affairs* are mentioned in captions under photos when an employee was hired, promoted or accepted an award (NASA Activities, June 1980; Sept 1980).

#### **Chapter Four: Findings**

##### ***Which in-house publications did the PAO use to disseminate information about the agency's diversity initiatives, specifically those related to women and African Americans?***

The NASA Public Affairs Office used a variety of publications to discuss diversity initiatives about women and African Americans. *Questions about Aeronautics and Space* included a pamphlet available agency-wide as a collaboration between the education office and the public information affairs office. *Social problems* and *Will we ever have women astronauts?* were both a section of the pamphlet created to address the public's frequently asked questions (NASA Activities, 1976).

The *NASA Activities* books, which were quarterly releases about the activities and events at each NASA center, were the first publications. The *NASA Activities* book was published from 1972 to 1990. A publication called "Minority Profiles" was a "full-color, 65-page booklet" published under the direction of Dr. Harriet G. Jenkins, the assistant administrator in the Equal Opportunity Programs office (NASA Activities, Jan. 1977, p.18). The pamphlet was produced at NASA Headquarters, but there is no evidence that it was circulated at the field centers. The archived NASA website links of press releases from 1990 to 1994 are missing. The website hosted a 1993 press release that carried the headline *Organizational Changes to Enhance program relations*, but the link is broken. The document is not available on NASA's main website or the technical website, NTRS.

The NASA History Office published *NASA News and Notes* that began in the autumn of 1990. However, these publications are about the technical aspects of the agency, not the goals or objectives on diversity or hiring matters.

The agency's performance and strategic plans date back to 2000. These reports can be reviewed collectively or separately, depending on the year of publication. The reports are labeled "FY\_\_ Performance report" or "FY\_\_\_ Agency Strategic Plans." The more recent publications are called Performance and Accountability Reports. The agency defines the PAR as an "annual retrospective" to review long-term goals and objectives for programs, management, and budget. The financial office produces the performance report but collaborates with other offices required by federal law to showcase NASA's achievements.

The Public Affairs Office published pamphlets, newsletters, a few press releases, and reports about minority diversity initiatives.

***How often did the NASA Office of Public Affairs (PAO) write about equal opportunity initiatives?***

***What are the equal opportunity initiatives' effectiveness, by year and decade, according to the goals and vision described by the agency?***

***What words did NASA use to describe diversity-related ideas?***

NASA publications mentioning topics on equal opportunity programs and initiatives were written most often during the latter half of the 1970s, a brief time in the early 1980s, and most frequently in the later 2010s. The findings will answer how often the publications mentioned the topics, by decade, and if the initiatives were effective. The words equal opportunity and equal employment opportunity are featured heavily in the 1970s and 1980s. The term switched to *diversity and equal opportunity* in 2010 (NASA FY Performance Plan, 2010). Then *diversity and inclusion* are officially added to a NASA publication the following year (NASA Strategic Goals, 2011).

The first call for diversity within NASA came from outside the agency, with a report published by a panel of experts in 1976. The panel hosted discussions about equal opportunity within NASA under the direction of the National Academy of Public Administration. This report outlined the first time the words *equal opportunity* appeared concerning the agency instead of only using *women* or *minorities*. The panel represented different universities and organizations and one employee of the federal office of management and budget. The committee visited NASA headquarters and every NASA field center to evaluate the equal opportunity efforts to increase the “intake of females and minority males and upward mobility for those in the present workforce” (National Academy of Public Administration, 1976, 3). The panel used General Electric as an example for NASA to mirror. Over the course of eight years, the panel noted, GE had increased the number of Black employees by 68 percent. The company also increased its number of women employees despite a decline in the workforce between 1968-1973 (NAPA, 1976, p.46). The panel suggested that the increases happened because GE’s management changed its attitude about equal opportunity employment.

The panel recommended that NASA’s newly formed Equal Opportunity Council should close the communication gap between the headquarters staff and the line managers “at all levels” within the agency (NAPA, 1976, p. vii). The panel recommended that the agency hire minorities in more senior-level roles, hold supervisors accountable for hiring practices, increase diversity within the civil service program, increase resources by collaborating with other organizations, and emphasize upward mobility (NAPA, 1976, p. iv). The panel noted that the agency’s “technically-oriented management” did not perceive equal opportunity as an aspect of human resource management (NAPA, 1976, p. iv-v). Reports about equal opportunity programs were not as cohesive at NASA headquarters as they were at field centers. The panel said the main

office [NASA Headquarters] lacked “management development programs, the lack of communication between the decision-makers and those who are affected by the decisions,” and the bureaucratic process of hiring within the federal government in general (NAPA, 1976, p.17).

The following year, a prospectus published NASA’s goals for the next five years. There were no goals or mention of diversity, women, or equal opportunity programs (NASA Activities, Feb. 1977, p.18-19). In 1977, publications showed diverse events, such as the Federal Women’s Opportunity Program meetings (NASA Activities, Dec. 1977, p.11) and the Equal Employment Office (EEO) celebrating “AfroAmerican” history month (NASA Activities, April 1977, p.6-7). There were no direct mentions of how the agency planned to increase diversity among its employees.

The term *women* was mentioned once in a letter from then-NASA Administrator Robert A. Frosch to employees. The word was used to highlight the agency’s growth during its 20 years of existence (NASA Activities, Oct. 1978, p.3.). No other administrator mentioned *women* or *minorities* in their letters to colleagues. Frosch was adamant about meeting the diversity goals introduced in the Civil Service Reform Act of 1978, which required federal agencies to “provide a workforce reflective of the nation’s diversity” (NASA Activities, 1979, p.4). Administrator Frosch’s letter also mentioned goals to “accomplish the mission and objectives of the agency with an integrate workforce, and to implement affirmative action programs” (NASA Activities, 1979, p.3). No other administrators mentioned those keywords before or after Frosch’s tenure.

The reports did not mention diversity other than concerning technical achievements in 1978. Those achievements involved outreach programs aimed to reach “minority children” and the selection of six “women astronaut candidates” (NASA Activities, March 1978, p. 23; p.3). However, a handbook developed by NASA headquarters focused on equal opportunity efforts

was published in 1978. The Federal Women's Program committee compiled the handbook to highlight the "requirements, responsibilities, and procedures" to begin the Equal Opportunity programs, specifically at headquarters (NASA Activities, 1978, p. 24). No other centers were mentioned in the publication. The handbook also listed the program as a "policy" for the agency with a goal to "ensure equality of opportunity for all employees and to avoid even the appearance of discrimination" (EEO Handbook, 1978, p.1-2). This handbook marked the agency's first step in using guidelines to increase diversity. This was a publication outside of the general monthly NASA news releases that non-headquarter employees read.

NASA Administrator Frosch mentioned women eight times and minorities six times in his two-page letter to employees. The only other time goals for the agency were mentioned was in a headline about the Equal Opportunity Council meeting to discuss the "implications of new complaint and appeal procedures under the new Civil Service Reform legislation" (NASA Activities, June 1979, p.20). The council met at the Ames Research Center three years after the NAPA panel suggested new procedures.

NASA Administrator Robert Frosch was the only administrator to directly address women and minorities in an open letter to employees. Most of the goals or objectives about diversity were not mentioned after Frosch left office in 1981. In fact, many of the keywords, such as *women*, *equal opportunity*, and *minorities*, were not found in any of the publications during the 1980s. The next mention of *equal opportunity* did not appear in publication until August 1981, when a forum of NASA Senior Executive Service women discussed their experiences of "dedication, opportunities taken and sacrifices made" they achieved to become executives within the agency (NASA Activities, 1981, p. 6-7). There was no mention of goals, policies, or procedures.

In 1985, the agency created an “affirmative action” award to acknowledge a NASA field center that hired the most women and minorities. The centers had to meet 42 different factors that led to the increase in “scientific, engineering, administrative, and supervisory positions” (NASA Activities, April 1985, p.10). Then-NASA Administrator James M. Beggs presented the award to the Ames Research Center that year. There was no mention of the specific goals, but the report mentioned NASA’s efforts to increase the diversity of its employees.

The *NASA Activities* publications were redesigned in 1988 to include an “Inside NASA” feature. The first highlight was *Women in NASA’s WorkForce*, which featured Harriet G. Jenkins, the assistant administrator for the Equal Opportunity Program, as an example of women’s advancement. The article said Jenkins demonstrated NASA’s “positive trends” to ensure “equal opportunity and the effective use of affirmative action” as a management tool (NASA Activities, 1988, p. 7-8). The article also said the equal employment opportunity office targeted six areas to increase diversity, including developing a “resource pool from which future female scientists and engineers can be obtained” (NASA Activities, March-April 1988, p.8). This section of the publication provided the first mention of childcare centers directly resulting from NASA hiring female employees. Sexual harassment was first addressed in 1978 “through policy statements” from each center’s director. Employee training was mentioned. Toward the end of the decade, Women’s History Month and National Secretaries Week were mentioned for the first time as field centers celebrated those events. The Equal Opportunity Council developed a “five-year initiative called the “Women in Science and Engineering Scholars Program,” which was adopted from the ideas of the Federal Women’s Program council (NASA Activities, 1988, p.9).

Mentions of diversity-related initiatives were scarce in the 1990s, lost NASA newsletters, originally titled *NASA News*, and the ending of the *NASA Activities* publication. The NASA

History Office, which keeps an archived version of the NASA website, stated that many newsletters and press releases between 1990-1994 are missing or have not been found. The first mention of *women* was in a *NASA News* publication in late 1990. The newsletter about a symposium on women in science, technology, and engineering took place at Johnson Space Center. The symposium was an outreach program with guest speakers Dr. Harriet Jenkins and Dr. Mae Jemison, the first African American female selected for the astronaut office (Humphries, Sept 1990). Public affairs support was outsourced for the first time during this era. NASA awarded a contract to Hernandez Engineering, Inc., based in Houston, Texas. The company was awarded a one-year contract at the beginning of 1990 to provide “public affairs support services, correspondence, and communication management,” among other tasks including “information resource management, documentation management, and the duplication, reproduction, microforms, and distribution management” (Copley, 1990).

Outside of the agency, NASA Administrator Richard H. Truly told *Space News* magazine that the agency was having difficulty hiring women and minorities in “greater numbers,” but he said the agency planned to establish a human resource office (NASA News, Jan 1991; Space News, Feb 1991). The Administrator Truly interview was discovered by Gawdich and Shetland, a group of editors who compiled the early-1990s *NASA News* press releases in 2000. A press release called *NASA to Emphasize Cultural Diversity in Procurement* on the archived version of the NASA website in mid-1992. However, the link to open the document was not accessible on the website. This goes back to the notice from the NASA History Office stating that documents are missing. In 1993, Congress passed the Government Performance and Results Act, which required federal agencies to set goals and objectives and implement them so that the public could hold the agencies accountable. Daniel S. Goldin, the NASA Administrator in 1993, followed up

with the goal of “diversifying NASA’s top management” in an interview with the Government Executive magazine (Gawdiak & Shetland 2000, p.316). The 1990s were also when NASA employees began to speak to outside sources about discrimination within the agency. A *NASA News* press release briefly mentioned that “women and members of the minority groups” had complained that executive positions were reserved for white men of the “old boy network” (San Jose Mercury News, 1993; Gawdiak & Shetland, 2000). The mention came on the heels of resignations by two Ames Research Center executives who left the center in 1993.

In 1994, NASA implemented a strategic plan to reinvent the agency due to a downturn in employment. Administrator Goldin said he would institutionalize “equal opportunity and workforce diversity” (NASA Strategic Plan, 1994, p. 1). To implement the strategy, the agency prepared a strategic plan that included equal opportunity as well as “equity” in everything it does (NASA Strategic Plan, p. 17-23). For the first time, the Human Resources Function was created to provide “recruitment and retention” of employees and career development strategies to manage downsizing for “operational environments” (NASA Strategic Plan, 1994, p.17). For the first time, the word “equity” was mentioned in publication materials, and it was the first time a strategic plan was created with the “equal opportunity, equity, and diversity” combined as goals (Strategic Plan, 1994, p.23). The next time an equal opportunity employment initiative was mentioned was in 1999. The agency stated that it would foster an “environment that is free of unlawful discrimination and ensure equal opportunity for all” as its values (Performance Plan, 1999, p.15).

The next decade is kicked off by increasing diversity, focusing on “hiring women, minorities, and individuals with disabilities” as a performance target to maintain a workforce during the downsizing (Performance Report, 2000, p. 166). The publications listed for the year



2000 led to inaccessible links on the archived NASA website. To retain a “high-caliber workforce” to ensure that it reflects the United States' diverse population, the agency reported that it did not achieve its workplace diversity goals (Performance Report, 2001). The agency was included in a federal agency survey in 2002 that labeled NASA as the “best place to work for women, racial minorities, and individuals under 40 years of age” (Gawdiak & Shetland, 2010). In 2007 and 2008, the NASA Performance and Accountability report on management and performance mentioned the combination of a new program office. The Offices of Human Capital Management, Diversity, Equal Opportunity, and Education were created to provide recent efforts in facilitating “student movement into the workforce” and creating better employment and hiring opportunities. A manager reviewed the initiatives, which were implemented in late 2008. This was the only mention of equal opportunity for employees at the end of the decade (Performance and Accountability, 2007; 2008, p.140).

At the beginning of the next decade, NASA began rating itself based on performance goals. In 2010, the agency reported that it did not meet the goal of hiring women and minorities from institutions because of the decrease in minority higher education students overall (Annual Performance Goals, 2010). Outside of NASA, the agency was committed to providing equal opportunity assessment and technical assistance to organizations that received NASA funding. Those efforts increased interest in potential employees, but there were no other diversity initiatives for current employees. For 2013 and 2015, there were many diversity and inclusion goals. In fact, the fiscal year 2013 was the first time the word inclusion made its way into official publication (Performance Goals and Annual Performance Plan, 2015-2017, p.190). In 2013, NASA proactively implemented goals to “prevent discrimination and harassment, manage the complaints process, increase racial, ethnic, gender, and other forms of diversity, and enhance

inclusiveness of work environments” for the first time (NASA Performance Goals and Annual Performance Plan, 2017, p. 191). The agency also surveyed employees for the first time in four years to “evaluate and address remaining D&I challenges” (Performance Goals, 2014). Each of these initiatives was maintained by agency management and operations, which transitioned to a new mission operating architecture (MAP) to provide employees with “resources, oversight, and direction” (Performance Evaluation, Agency Financial Report 2019, p.19)

The leadership examples of Bolden, Melroy, Jones, and Washington show that NASA has stepped up its diversity and inclusion hiring initiatives (Office of Diversity and Equal Opportunity, 2015). The public affairs offices allow these four to show that having a diverse workforce behind the scenes can inspire current and future generations. Along with other federal agencies, the executive order directed NASA to prepare a “diversity and inclusion initiative and strategic plan” (Obama, 2011, p. 2). NASA said that “demonstrated leadership” is a crucial component to advancing its equal employment opportunities and “weave in” diversity and inclusion within its culture (Office of Diversity and Equal Opportunity, 2015, p.1). The agency executives said people in management positions involved with diversity and inclusion efforts are “integral members of senior leadership” (Office of Diversity and Equal Opportunity, 2015, p. 15). Leaders increased transparency within the agency by creating initiatives like “Strengthening Management Outcomes,” which allows them to discuss supervisory practices and decisions to ensure employees are treated fairly and equitably (Individual Leadership at Agency Level, 2015, p.4). The transparency of managers allows employees on their teams to be more trustworthy and boost morale.

The initiatives set by agency management continued through 2020 and are current for 2022, where the Human Capital Resources and Equal Employment Offices collaborate on

“inclusion initiatives, workforce development, and alternate dispute resolution services and complaint investigations” for employees (Agency Management and Operations, p.20). The agency also began a *Unity Campaign* to “unify the NASA workforce is working towards agency goals.” The campaign was created by the Office of Diversity and Employment in collaboration with other offices to “develop metrics and assessment tools” (Volume of Integrated Performance, p. 119), such as data from the Federal Employee Viewpoint Survey that asks employees about team building activities and how they view leadership. One of the performance goals is listed as an indicator to “define and build diverse workforce skills and competencies” for the agency’s mission, such as ensuring that the workforce has a balanced skill mix to meet current and future needs. This goal was set in 2019 but has not been completed (Volume of Integrated Performance, 2021, p.120).

The diversity and inclusion initiatives published by NASA Public Affairs Office collaborated with other agency offices, such as the NASA Education Office and the NASA Office of Diversity and Equal Opportunity. Each decade provided a different view of how the agency defined what it considered diverse using its equal opportunity programs.

#### Hidden Figures of NASA Communication

The research revealed the names and the positions of people mentioned in the publications. Most of their names were in captions or subheadings of photos in the NASA Activities newsletters. For example, Lillian R. Levy was the first director of public affairs. She was among the first who contributed to NASA’s communication office. Levy was a journalist that wrote about space and was a liaison officer for the communication office. She wrote “Down to Earth: A woman’s view of space,” a weekly news article during the 1960s. Levy also was the editor of “Space, its impact on man and society” and “The Domestic Side of space: a challenge

to women” (NASA Activities, 1977, p.20). However, these publications were not online; they were briefly mentioned in *NASA Activities* when she was elected to the American Newspaper Women’s Club (NASA Activities, 1978). The keyword *women* were used when Levy’s name appeared during the search.

Ruth Bates Harris was the deputy assistant administrator of public affairs for community and human relations in 1976. She was the first woman within NASA to achieve the rank of deputy assistant administrator. Harris was the first African American woman to lead an office within NASA. In 1975, Harris spoke to a group of students during s summer camp course at Goddard Space Flight Center. She said NASA provided minimal effort into hiring women and minorities and that the agency had a “tragic track record in equal employment opportunity” (NASA News, 1975, p. 10). However, she also “beckoned” students to join the agency because of the “radical changes” and opportunities from the upcoming space shuttle program (NASA News, 1975, p.12). She resigned from NASA on October 15, 1976, with “mixed emotions,” but the announcement of her resignation was not released for another month (NASA Activities, Nov. 1976, p.10).

Dr. Harriet G. Jenkins succeeded Harris as the deputy assistant administrator for the NASA Equal Opportunity Programs. She worked for NASA for almost 20 years, visiting multiple centers and leading education outreach events to recruit more diverse talent for the agency. Under her tenure, Jenkins coordinated the establishment of the Equal Opportunity Council in the mid-1970s. She continued to report on the progress of each NASA center until she left the agency in 1992. Jenkins also contributed to the American Society for Public Administration, specifically tasked to address affirmative action issues directed by the Carter

administration (NASA Activities, 1979). In 2000, NASA created a pre-doctoral fellowship program in her honor.

Judith Ann Cole is the first woman appointed as the deputy assistant administrator within the office of legislative affairs. Cole was briefly mentioned in a caption about a correction about the “firsts” of the female cohort (NASA Activities, 1976, p.1).

Pat Jones was the *NASA Activities* editor in the early 1970s. Jones worked for NASA for almost ten years until her retirement in January 1976 (NASA Activities, 1976). She was succeeded by Ann Weeks.

Ann Weeks was the editor of the *NASA Activities* publications. No other information about Weeks was found other than her name mentioned every year in the introduction of the *NASA Activities* publications.

Trudy Tiedemann was the first female commentator for NASA. She was a public information specialist at Dryden Flight Research Center. The information about Tiedemann was found in the June 1977 *NASA Activities* report. She was briefly mentioned in the caption *Did you know?* (NASA Activities, 1977, p.24).

Teresa A. Horvath was the first president of the Business Professional Women’s club at the Lewis Research Center. Horvath was also the director of the Ohio Federation of Business and the Federal Women’s club coordinator (NASA Activities, 1977, p.6).

Oceola S. Hall was among the first African American executives in NASA who led the Office of Diversity and Equal Opportunity Office. She served for 25 years. Hall was also the Federal Woman Program manager between 1974 and 1978.

The names mentioned as hidden figures in communication are only a few discovered in the publications. The following table lists names compiled in the *Minority Profiles* publication written by Dr. Harriet G. Jenkins in 1977.

Table 3: Hidden Figures in *Minority Profiles* (1977)

Male	Female
Dr. Mario H. Acuna, GSFC	Fredreda C. Akers, GSFC
Henry H. Arnaiz, Dryden FRC	Rhonda L. Alcorn, JSC
Percy E. Baynes, NASA HQ	Shirley A. Chevalier, JSC
Gale Butler, Lewis RC	A. Marie Coleman, NASA HQ
Arturo B. Campos, JSC	Christine M. Darden, Langley RC
Clarence E. Catoe, NASA HQ	Joyce T. Dooley, Lewis RC
Shizuo Doiguhci, Ames RC	Annie J. Easley, Lewis RC
Julian M. Earls, Lewis RC	Al C. Fang, HQ
Jerry C. Elliot, JSC	Diane M. Ford, MSFC
Heibert G. Epps, JSC	Mary W. Jackson, Langley RC
Col. Gonzalo Fernandez, NASA HQ	Annginetta Johnson, JSC
Louis B.C. Fong, NASA HQ	Josephine Jue, JSC
Joseph Fuller, Jr. NASA HQ	Elena Melgares, JSC
Isaac T. Gillam, IV., Dryden FRC	Izella Mitchell, JSC
Orlando A. Gutierrez, Lewis RC	Elaine F. Munoz, Ames RC
James A. Harris, Langley RC	Laura A. Shawnee, Ames RC
Gilbert A. Haynes, Langley RC	Charlotte B. Spann, NASA HQ
Billy T. Hervey, JSC	Brenda P. Willis, KSC
Herman Hines, JSC	
Earl B. Jackson, Wallops FC	
Peter Jones, GSFC	

Juan A. Juarez, KSC	
John Kaskaske, GSFC	
Robert B. Lee, III., Langley RC	
Dr. Dudley G. McConnell, NASA HQ	
Dr. Paul Pao, Langley RC	
Walter A. Payne, Jr., GSFC	
Frank E. Penaranda, NASA HQ	
Jose R. Perez, JSC	
James S. Raby, Ames RC	
Ruben Ramos, Ames RC	
Dr. Lynwood P. Randolph, NASA HQ	
Peter L. Robinson, Jr., NASA HQ	
Lawrence W. Rucker, Dryden FRC	
Fidel R. Rul, Jr., Goldstone Tracking Station	
Robert E. Shurney, MSFC	
Earnest C. Smith, MSFC	
John L. Tarpley, GSFC	
Robert H. Tooley, KSC	
Henry P. Wong, NASA HQ	
Robert Y. Wong, Lewis RC	
Willie E. Wright, JSC	
Suey T. Yee, Lewis RC	

### **Chapter Five: Recommendations**

If there is interest in the communication aspects of NASA, specifically about its non-technical achievements like diversity and inclusion, here are a few suggestions.

### Future Research

First, separate the topics. The researcher chose to investigate the diversity initiatives of women *and* African Americans. In hindsight, the researcher should have selected one of the topics, not both. Even though “women and minorities” are often mentioned together in NASA publications, both have separate programs addressing the issues each. There is also an opportunity to explore the efforts to include women and minorities in the NASA-related small business programs and the student outreach programs.

Next, investigate other diversity initiatives. Beginning in the 1970s, mentions of other diverse groups meeting within NASA. In terms of Hispanic culture (now Latinx), there was a Hispanic Employment outreach program (HEP) (NASA Activities, Dec. 1989, p. 12), the official recognition of National Hispanic Heritage Week by NASA (NASA Activities, Nov. 1976, p.4), and the creation of the Office of Hispanic Affairs. There is also a mention of Dora Borjon, an essential hidden figure based at the Dryden Flight Research Center. Borjon was the first Spanish-speaking coordinator at the center and was the first director of IMAGE, a non-profit organization for Hispanic federal workers (NASA Activities, Aug. 1977, p.20). The publications also mention Native Americans (NASA Activities, Dec. 1977, p. 10-11) and the recruitment of students at New Mexico State University (NASA Activities, Aug. 1976, p.19). There is an opportunity to research the diversity and inclusion initiatives aimed at recruiting Asian Americans and Pacific Islanders (AAPI).

The initiatives do not have to involve race specifically. Although the researcher also focused on women, there are mentions of opening positions for those with disabilities. A researcher can also delve into what programs NASA developed for the LGBTQ+ community.



Although the researcher did not find any mentions of programs or initiatives, there will probably be research on this topic's history.

### Research Ideas

The researcher concluded that there are no publications about the history of the NASA Communication Office, the Public Affairs Office (which is a sub-office within the Communication Office), and the Equal Opportunity Office. Future research may find the origins of each office and create a definitive non-technical publication similar to how Iyor Y. Gawdiak and Charles Shetland compiled the 1991-1995 press releases and William Noel Ivey and Marieke Lewis compiled the 2001-2005 press releases for the NASA History Office.

Another idea would be to separate the diversity initiatives of NASA's efforts to extend contracts with small (mentioned as *minority business*) businesses. There were several instances of these contracts and initiatives to specifically create partnerships with women and Black-owned companies. The small business diversity program could be another historical publication.

Third, an idea would also involve diversity initiatives but outreach to draw interest to hiring women and people of color at all levels of education. The history of those initiatives should include university students and early learning, K-12, and non-academic institutions (for those without an academic background). The idea to compile these initiatives would directly involve the Office of Education, which is now called the NASA STEM Engagement Program.

The final idea would be to investigate the legislative acts and executive orders that impact NASA's hiring practices. As of this report, the NASA Office of Inspector General (NASA OIG) announced an audit of the agency's effort to advance "diversity, equity, inclusion, and accessibility. The OIG is evaluating the agency's policies, procedures, and data, but other details,

specifically about the years examined or the timeframe of publication, has not been released (NASA OIG, 2021-2022).

## **Chapter Six: Conclusion**

The National Aeronautics and Space Administration is known for its technical pursuits in exploration. However, the agency has a history of ignoring societal issues concerning the rights of women and minorities. The focus of this study used a historical analysis approach to review documentation published by the NASA Communications Office about internal diversity programs.

The research highlighted the influence of Nichelle Nichols and her Women In Motion organization that helps women and minorities. Ed Dwight and the Mercury 13 participants' failed selection could have helped diversify NASA in the agency's early years.

The evidence from annual reports, newsletters, news articles, and press releases showed that the agency slow-walks the initiatives or programs to directly address the internal hiring processes involving women and minorities. This study used various keywords in NASA documents to search how the agency discussed women and minorities, the involvement and creation of diversity programs, and the effectiveness of those programs. The study also recognized that when those programs were not discussed or reported, by examining the documents, many women and minorities were hired afterward despite the lack of diversity.

The documents revealed that Robert Frosch was the only NASA Administrator to directly address women and minorities in an open letter to employees. While reviewing the publications, this study found more unknown representatives that participated in the communication aspect for NASA. The study recommends more analysis of the history of the NASA Communication Office, including the Public Affairs Office and the Office of Diversity and Equal Opportunity.

The study also suggests piecing the diversity and inclusion initiatives of other minorities, small business programs, and student outreach programs.

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