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An analysis of media coverage of the U.S. space program, 1962-1986

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AN ANALYSIS OF MEDIA COVERAGE OF THE U.S. SPACE PROGRAM
1962-1986

A Thesis

Presented to

The Faculty of the School of Journalism and Mass Communications

San Jose State University

In Partial Fulfillment

of the Requirements for the Degree

Master of Science

by

Lisa A. Goens

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ABSTRACT

AN ANALYSIS OF MEDIA COVERAGE OF THE U.S. SPACE PROGRAM 1962-1986

by Lisa A. Goens

This thesis addresses the topic of media coverage of the U.S. space program from 1962 to 1986. The research examined the frames that were exemplified in media coverage of the space program. A statistical analysis was conducted to examine the changes over time and the differences between media, in addition to a qualitative analysis of the frames.

It was thought that the most frequently used frames were likely to be conquest, scientific achievement, and danger; conquest, scientific achievement, and race against Russia would decline over time, while public relations image, routinization of space travel, and taxpayer waste would increase over time; the frequency of crisis coverage would increase over time; television would carry more crisis-related stories through the years, while print coverage of crisis issues would decline; science-oriented media would carry more science topics than that of the popular media. Hypotheses 2 through 4 were not supported.

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*Dedicated in loving memory of my grandfather, Everett R. Jones,
who provided my inspiration for the final analysis of this thesis
and unlocked the key to many of life's wonders.*

May 22, 1913

October 19, 1996

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CHAPTER I

Introduction

History of U.S. Space Program

America began its attempt at space exploration in 1957 when the first American satellite, Vanguard, burst into flames on the launch pad. The following year, another satellite, Explorer I, was successfully launched, and the National Aeronautics and Space Administration (NASA) was developed. In 1959, the first seven astronauts were selected for project Mercury: Walter Schirra, Donald (Deke) Slayton, John Glenn, Scott Carpenter, Alan Shepard, Virgil Grissom, and Gordon Cooper. During the following two years, a weather satellite was launched and work began on the Cape Canaveral launch site in Florida. This facility was later renamed after President Kennedy.

Following a successful 15-minute suborbital flight with Alan Shepard in Mercury's Freedom 7 on May 25, 1961, President Kennedy committed the United States to a successful landing on the moon by 1970. "I believe that this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the moon and returning him safely to the Earth. It will not be one man going to the moon; it will be an entire nation." Kennedy's charge is frequently mentioned in references to the beginning of the space program, now 35 years ago.

Two years later, Senator Clinton Anderson, head of the Senate Space Committee, defended Kennedy's charge:

1

We cannot afford not to go to the moon . . . Any slowdown in our nation's space program would certainly afford great comfort to our enemies and spread dismay among our friends overseas. To slacken the space effort after having accepted publicly on a national basis the Soviet challenge would open us to accusations of lack of firmness and resolution regarding national goals (Bergaust, 1968, p. 160).

During the next several years, the U.S. space program began a rigorous schedule of sending men into orbit, and the Mercury program evolved into the Gemini program from 1965 through 1966.

In the early days of the nation's missile and space programs . . . explosions were so common that the experts at Cape Kennedy—as well as the public—took them for granted. From the first failure of a missile in the early fifties, Cape Kennedy has been a place of taut nerves and supertension . . . With extensive television coverage, much of this strain rubbed off on the American public, and when the United States was ready to send aloft its first astronaut, millions of Americans watched the preparations, the launch and the recovery with fingers crossed, praying that everything would go well. They recalled only too vividly how so many of our previous unmanned rockets and space vehicles had failed or exploded, the shattered debris swallowed by the Atlantic Ocean (Bergaust, 1968, p. 14).

However, in addition to public concern, there was concern about the safety of the Gemini program on the part of Congress, which issued a report in June 1964 calling for a complete re-evaluation of the program "to place greater emphasis on human life than on winning a race with the Russians" (Bergaust, 1968, p. 100). Led by California Republican Congressman Gubser, NASA was urged to slow down its quest for the moon, as Gubser said that he did not believe the public was willing to accept unnecessary casualties in space. In studying the Mercury program, the committee found 10 hazardous component and equipment malfunctions per launch. Granted, the report said, any man-made system is not immune to malfunction beyond NASA's control, but efforts should be made and resources set aside for a rescue ship to be designed (Bergaust, 1968, pp. 100-101). Bergaust (1968)

asked, "What's the sense of being first if the way to the moon has to be paved with the needless loss of lives" (p. 203)? But still NASA pressed on, managing to achieve initial success in its manned space program.

As the American manned space program got under way in the early sixties, it appeared to be blessed with success. American astronauts were sent into lofty orbits around the earth and then recovered safely. Certainly, the public suspected there were many near-misses and close calls. But although the stunning space flights still staggered man's imagination, Americans began to consider them commonplace, a giant step forward in man's steady technological progress which they accepted complacently (Bergaust, 1968, p. 14).

Indeed, although several of the missions up to this point involved some sort of life-threatening close calls, such as doors exploding at splashdown, loose heat shields, propulsion system and computer malfunctions, and uncontrolled turbulence, the first Apollo mission in 1967 was met with unmistakable tragedy. The three-man team of Virgil Grissom, Edward White, and Roger Chaffee died on the launch pad during a countdown demonstration exercise at the Kennedy Space Center. Because the exercise was not considered to be hazardous, no safety personnel or emergency equipment were stationed nearby.

The horror of this accident was compounded by the fact that NASA imposed a news blackout seemingly for several weeks. However, when press and public indignation grew to monumental proportions, NASA permitted one reporter to survey the damage the day after the accident.

After this information was released, word began circulating that there was ample warning of a possible disaster. In fact, it was revealed that authorities at NASA's Manned

Spacecraft Center in Houston had leaked to the press one month before the accident that "something like 20,000 failures of one kind or another had been logged in tests of the Apollo cabins and engine sections," resulting in the launch date being delayed from November 1966 to February 1967 (Bergaust, 1968, p. 28). A few months before the accident, the House Subcommittee on NASA Oversight issued a 584-page study, citing potential electrical-mechanical failures of power systems, life support systems, control systems, or propulsion (Bergaust, 1968, p. 166). Grissom himself had even expressed dissatisfaction with the command module by leaving a lemon on it (Lovell & Kluger, 1994, p. 13).

When the 100-page NASA accident summary report was submitted to Congress one year after the accident, many believed it failed to take other safety factors rather than fire into consideration. "The Apollo program is like the street corner that doesn't get a traffic light until somebody is killed there by a car," said one aerospace industry expert (Bergaust, 1968, p. 191).

Criticism of the space program's cost was then combined with criticisms about its safety. "After the fire, a Harris Survey found that support for the space effort had declined sharply. A majority of the people now feels [sic] that it is no longer worth what it will cost to put a man on the moon" (Bergaust, 1968, p. 161).

In 1965, a sampling of American adults showed that by a slight edge they felt the space effort was worth the \$5 billion-a-year cost. However, these same people, when asked if they would still favor the program if the Russians dropped out of the race, rejected the idea almost two to one.

About a year after the Apollo accident, on December 2, 1967, another survey, conducted by Trendex, Inc., on behalf of the aerospace firm Thiokol Chemical Corporation, revealed that interest in the space program had dropped to its lowest

level in more than four years. Five other current public issues outranked space: water pollution, 83 percent; air pollution, 82; job training for the unskilled, 68; programs to keep America beautiful, 51; antipoverty drive, 45; space exploration, 26 (Bergaust, 1968, p. 162).

After the accident, improvements were made to include a hatch that could be opened in 7 seconds, upgraded fireproof wiring, nonflammable fabric throughout the ship and in spacesuits, and a 60-40 oxygen-nitrogen mix rather than the 100% oxygen atmosphere that had killed Grissom, White, and Chaffee. Also modified was the schedule of the missions.

Though John Kennedy had been dead since 1963, his grand promise—or damned promise, depending on how you looked at it—to have America on the moon before 1970 still loomed over the Agency. NASA officials would have considered it a profound failure not to meet that bold challenge, but they would have considered it an even greater failure to lose another crew in that effort. Accordingly, chastened Agency brass began making it clear, publicly and privately, that while America was still aiming for the moon before the end of the decade, the breathless gallop of the past few years would now be replaced by a nice, safe lope (Lovell & Kluger, 1994, p. 33).

In the following months, several unmanned Apollo missions were also plagued with disaster: Apollo 4 suffered a fuel spill and a major computer malfunction; Apollo 5's windows shattered and the engine failed; and Apollo 6 went into the wrong orbit. Even Apollo 7, which was supposed to get the U.S. manned space program back on track, had no less than 50 malfunctions.

Apollo 8, in December 1968, was the true test of the race against the Russians. Frank Borman, Bill Anders, and Jim Lovell were the first to see the far side of the moon with their suborbital mission. The Russians rushed to make the same flight but the re-entry test failed on the first try. "The next mission resulted in a booster explosion; that was the end of their program" (J. Lovell, personal communications, January 25, 1996).

The Apollo 11 mission in July 1969 with Neil Armstrong, Michael Collins, and Edwin (Buzz) Aldrin, Jr.'s successful landing on the moon had its own set of problems. The lunar module suffered a computer overload and low descent fuel that almost forced an abort of the lunar landing itself. These were overshadowed by the long-pursued goal of touching down on the moon. This accomplishment made international headlines with Armstrong's now-famous first words, "That's one small step for man, one giant leap for mankind."

Apollo 12 followed four months later and was almost forced to abort in mid-air when its Saturn V booster was struck by two bolts of lightning. This near-crisis had little importance compared with Apollo 13, which nearly cost the lives of James Lovell, Jr., John Swigert, Jr., and Fred Haise, Jr. These men did not achieve their goal of landing on the moon. In fact, they barely made it safely back to Earth after the spacecraft lost an engine in the second stage and an oxygen tank aboard the spacecraft exploded. "Almost all flights have something go wrong but we didn't plan for multiple failures . . . in a \$20 billion program, without tape, plastic, and cardboard, you're lost" (J. Lovell, personal communications, January 25, 1996).

For all its promise, the mission of Apollo 13 was never one that seized the imagination of the country. For pure drama, there were plenty of other things you could pay attention to in the spring of 1970 than the adventures of—what was it by now?—the fifth and sixth men who would walk on the moon. On April 9, two days before the scheduled launch, *The New York Times* made no mention of the mission, devoting front-page coverage to the U.S. Senate's surprise rejection of President Nixon's latest Supreme Court nominee, Judge G. Harrold Carswell.

Elsewhere in the news that week was the announcement of an eleven-month high in Southeast Asian casualty figures; a decision by the Massachusetts Supreme Court to delay the release of the Mary Jo Kopechne inquest results; the introduction of an ingeniously packaged women's hosiery product, L'eggs; a revelation

by Paul McCartney that he was experiencing "personal difficulties" with the other three Beatles and had decided to leave the band; and the opening of the baseball season . . . The first significant mention of Apollo 13 in the *Times* that week was on April 10, the day before the flight—on page 78, the weather page (Lovell & Kluger, 1994, pp. 80-81).

In the early days of the space program, "NASA still had the television networks in a hammerlock and routinely got all the TV time it wanted" (Lovell & Kluger, 1994, p. 108). But after the excitement of Apollo 11, NASA was hard pressed to interest the networks with additional space wizardry.

For that flight [Apollo 12], NASA bosses had still harbored hopes of retaining the huge TV audiences they had enjoyed during Apollo 11, and even tried to sweeten the public relations pot by scrapping the crude black-and-white camera Neil and Buzz had used on the surface of the moon and replacing it with a more sophisticated color job. The idea seemed like a good one, but only until the moment Al Bean and Pete [Conrad] actually set foot on the lunar surface and accidentally pointed their wonderful new camera toward the sun, frying its single eye like an egg and forcing the cancellation of all broadcasts for the rest of the trip. From then on, it was all downhill as far as NASA and the networks were concerned, and though Agency technicians had equipped the cameras on Apollo 13 with a stronger filter . . . the TV stations had essentially shrugged at the offer (Lovell & Kluger, 1994, p. 108).

To characterize the malaise that had been draped over the space program by the media and the public, the networks chose to air "The Dick Cavett Show," an "I Love Lucy" rerun, and a major league baseball game rather than coverage of the in-space film of Lovell, Haise, and Swigert shortly before the accident.

This wasn't Shepard's Freedom 7 or Glenn's Friendship 7 anymore, and it certainly wasn't Neil Armstrong, Michael Collins, and Buzz Aldrin's Apollo 11—the magnificent mission that just nine months earlier had made the first landing on the surface of the moon. This was Apollo 13, the third such landing, and by the spring of 1970, both the network and the country it reported to were bored. What ABC was showing instead of the late-breaking moon news was "The Dick Cavett Show."

. . . Cavett bantered with his band and his audience before his guests were introduced . . . "did you read that three million fewer viewers watched this space shot than the last one? Colonel [Frank] Borman was here the other day, and he admitted that space shots are sort of losing their glamour. But in fairness, the problem might have been partly that it was a nice day and a lot of people were out, and partly that a lot of people thought the launch was a summer rerun."

While Cavett talked, Jules Bergman's director over in the ABC news studio finished counting down from ten to one, and all at once the TV image of the talk-show host was replaced by the bright red words "Apollo 13" and the bright blue words "Special Report" (Lovell & Kluger, 1994, p. 4).

"We've flown so many [space missions] that we don't think there will be accidents.

Human nature is that we become complacent. Only when an accident occurs, [do] we become interested. I don't see how we could get around it" (J. Lovell, personal communications, January 25, 1996).

After the danger became apparent and public interest grew, the media also suddenly became intrigued, requesting that a broadcast tower be placed on the Lovells' lawn to provide complete coverage of the crisis. Marilyn Lovell, wife of the Apollo 13 commander, viewed the request skeptically.

Weren't these the same people who had been so conspicuously absent for the last two days? The same ones who didn't carry her husband's broadcast last night, who buried the news of his impending launch on the weather page, who gave more time to Dick Cavett's jokes than to [the ABC] reports? . . . "Couldn't they have set their tower up yesterday or the day before if they had wanted to?" "Well, yes," the voice answered. "But that was different." "How so?" "Well, the flight was going fine then. Now it's . . . you know, more of a news story." "If landing on the moon wasn't enough of a news story for them. I don't know why *not* landing on the moon should be" (Lovell & Kluger, 1994, pp. 194-195).

Interest followed through the rest of the flight until the crew splashed down in the Pacific Ocean at 12:07 p.m. Central time on April 17. What followed was a "national sigh

of relief . . . that was the loudest and longest since John Glenn's return from America's first manned orbital mission eight years earlier" (Lovell & Kluger, 1994, p. 340). From that first-ever live television coverage of the crew's recovery at splashdown, through the next 48 hours, "the media shadowed them, beaming coverage of the welcome-home rites around the world. The stories and pictures were uniformly positive, indeed almost fawning" (Lovell & Kluger, 1994, p. 341). It was viewed by the largest television audience ever recorded for a NASA mission. However, that was the only heroic recognition the crew received. "There are no Harmon Trophies for missions that did not achieve their primary objectives; no Collier Awards for spaceships that blew up before they got where they were going" (Lovell & Kluger, 1994, p. 337).

The mass media created the mistaken impression that Project Apollo was merely a repetitious public relations exercise, a technological boondoggle demanding little or no human heroics. That misperception was only temporarily challenged by the catastrophic explosions on Apollo 13 that nearly claimed the lives of the three astronauts on board. Once the Apollo 14 landing got the program back on track, the prevailing popular attitude toward subsequent lunar missions became, in the words of a widely reprinted photo caption, "so what?" (Hurt, 1988, p. xii).

"Having all but forgotten the Apollo 13 crisis, most of the world considered Apollo 14 a nonevent . . . And although an estimated 45 million watched the U.S. network broadcasts, that was less than half the audience for Apollo 11" (Hurt, 1988, p. 218).

Apollo 14 did attempt to get the space program back on track nine months after the Apollo 13 crisis, followed by missions 15 and 16. Even then, several mechanical and computer malfunctions were evident, although they were overcome by the efforts of the skilled crews. " . . . although the uninformed public grew blasé about space travel, each

crew faced incrementally greater dangers, for the statistical probability of catastrophe increased in the wake of every success" (Hurt, 1988, p. 187). Former NASA Safety Director Jerry Lederer said:

The spacecraft and booster consisted of more than 5.6 million parts and 1.5 million subsystems. Even if all these components functioned within 99.9% reliability, the spacecraft could be expected to suffer a statistical minimum of 5,600 malfunctions, almost any of which, if left uncorrected, could lead to disaster (Hurt, 1988, p. 103).

Still, even the crews seemed to get caught up in the routine nature of the missions. " . . . the crewmen on the last two lunar landing missions whose confidence was so fortified by previous successes that handling the technical chores of a voyage to the moon really did seem routine . . . " (Hurt, 1988, p. 115).

December 19, 1972 marked the end of the lunar missions with the splashdown of Apollo 17. Earlier that year, President Nixon had approved the development of a reusable space shuttle, or a "routine operational space trucking system," designed to study human utilization of the Earth's orbit. Nixon said, "It will revolutionize transportation into near space by routinizing it" (Kerrod, 1986, p. 135). Some criticized the *shuttle-only* policy by Nixon, saying it was more a series of events than a space program and suggesting a mixed-fleet approach instead. Nixon's reasoning was that projects such as Mercury, Gemini, and Apollo generated purpose-built hardware that could not be used again, and ended up orbiting aimlessly before burning up in space.

The beginning of the shuttle program in 1973 was not so routine, however, when the experimental space laboratory Skylab experienced the loss of a solar panel and insulation. Following that near-disaster and through the next 10 years, space travel went along on a

seemingly routine pattern.

That was not to continue, as the first flight of Skylab on the shuttle in November 1983 experienced a fire upon landing. None of the six crew members were injured. This coincided with NASA's 25th anniversary. Seven months later, the first launch of the shuttle Discovery was aborted and a blaze on board was extinguished. Nearly a year later, in April 1985, during the fourth mission of Discovery with Senator Jake Garn aboard, a hole developed in the heat shield and the spacecraft suffered a flat tire upon landing.

At the beginning of 1986, on January 28, 19 years and one day after Grissom, White, and Chaffee were killed aboard Apollo 1, NASA suffered what is still considered its worst tragedy. NASA's 25th shuttle mission, the Challenger, with Astronauts Richard Scobee, Michael Smith, Judith Resnick, Ronald McNair, Ellison Onizuka, Gregory Jarvis, and civilian teacher Christa McAuliffe, burst into flames seconds after it was launched from Kennedy Space Center at 11:38 a.m. Eastern standard time.

Many considered the inclusion of McAuliffe to be part of a publicity campaign to keep interest alive in a space program that had become routine as Americans in 55 previous space missions had returned safely to Earth. "Christa would be the first ordinary citizen to be lofted into space, emphasizing that space flight on the shuttle was now a routine and commonplace event, open to ordinary mortals and not just to super-trained astronauts" (Kerrod, 1986, p. 235). When in fact, "the loss of the seven Challenger astronauts, who included a civilian grade school sic teacher, reminded all the world of the true dangers of what had come to be taken for granted as a routine exercise safer and more tedious than a cross-country automobile trip" (Hurt, 1988, p. xii-xiii).

In addition to the human casualties, America's innocence about space travel also had been lost.

The American people, including their president, were shocked to learn so dramatically that space is not safe. Unprecedented national grief over the loss of the Challenger seven turned to dismay and horror as a sense of reality emerged from televised coverage of the investigation and of wreckage brought up from the bottom of the Atlantic Ocean (Murray, 1989, p. 22).

"We always knew there would be a day like this," said former Astronaut John Glenn. "We're dealing with speeds and complexities we've never dealt with before" (Kerrod, 1986, p. 237).

On the 10th anniversary of the Challenger explosion, an article by William J. Broad, reporter for *The New York Times*, was reprinted in the *San Francisco Chronicle/Examiner*:

. . . the National Aeronautics and Space Administration has invested more than \$5 billion to rebuild the nation's fleet of winged spaceships and enhance the safety of hundreds of parts and systems, including the flawed engine and its leaky seal that doomed Challenger. It has successfully flown 49 shuttle missions since then, no small accomplishment . . . Even so, NASA officials see the risk of catastrophe as roughly 1 in 145 missions for each ship and worry that another disaster is almost inevitable before the shuttles are retired sometime in the 21st century (Broad, 1996, pp. 1, 12).

Scope of Study

The American people, including a number of decision makers, rarely had any direct experience with the country's space program. What they knew about it mostly came from the coverage by the news media, and what they saw was from the eye of the news media. This, then, raises a question: How did the media cover the space program over the years?

This study attempts to explore this general question by using frame analysis. By examining the frames that are used by the media to present a crisis situation in space, the thesis aims to address these questions: 1) What were the major frames used by the news media to cover the space program during the height of the space program? 2) To what extent and how did the frames change over time? 3) What was the difference between the non-crisis frames and crisis frames? 4) What was the difference between television frames and print frames? 5) What was the difference between the frames used by science-oriented media and those used by the popular media? The questions of how the press frames coverage of space missions and routine versus crisis events were answered by virtue of a content analysis of newspaper, periodical, and television clips judged by coding various types of frames, which will be discussed further into the thesis. The time frame that was studied was 1962 through 1986. Statistical tools were used to examine the changes over time and the differences between media, in addition to qualitative analysis of the frames.

Preliminary answers to these questions were reached by examining the theories of mass communication through three lenses: the nature of news and framing concepts, crisis reporting, and science reporting. Chapter 2 reviews the literature on these topics.

The findings in the literature review pointed to several constraints that make up the selection criteria of news. The crisis reporting literature would have one conclude that the media serve as conduit for information and a calming influence during a crisis. Finally, the science reporting literature mentioned the differences between journalists and scientists, and provided some of the ways both may cope with those differences in providing information

to the public.

Chapter 3 is a discussion of the methodology of this study, which is a content analysis using *The Washington Post*, *Popular Science*, and CBS newscasts. Chapter 4 provides the results of the study, and Chapter 5 consists of a summary, conclusion, limitations of the study, and suggestions for future research.

CHAPTER II

Literature Review

Nature and Origins of News

Despite their commitment to objectivity, journalists are influenced by a variety of factors, ranging from personal factors to systemic factors. The production of news is influenced by factors at four levels: individual, organizational, media-level, and systemic. That is why journalists place issues and ideas in simplistic and convenient frames, and these frames are constructed under the influence of these constraints.

Individual Constraints

The components at the individual level sometimes include ideology, education, skills, tastes, and professional standards. Lippmann (1922) placed a great deal of importance on the experiences, ethics, attitudes, and values of the individual journalist: "It comes from the difficulty of finding journalists who can see what they have not learned to see" (p. 39). The gatekeeper study by David Manning White (1950) is a prime example of the role a communication practitioner plays in the selection of news. Shoemaker and Reese (1996) also cited the example that reporters are taught to write in the inverted pyramid style whereby the most important information, in the journalist's view, is placed at the beginning of the story (p. 6). Gans (1979) concurred, saying that the news is shaped by the "professional news judgment of journalists" (p. 78). For example, an event may be slanted by a reporter in several different ways. One reporter may describe a crowd at a public appearance as *large and enthusiastic* while another may see the same crowd as *meager and uninterested*. It is difficult for a reporter's choice of wording and emphasis to not color an

issue a certain way due to his or her motivations, prior experiences, beliefs, and values.

Organizational Constraints

These constraints sometimes include management and ownership, monetary resources, staffing resources, and operational structure. Organizational constraints are most evident in the story selection process which begins by reporters' interaction with peers, organization superiors, and news sources (Whitney, 1982, p. 251).

It is clear that the eventual news content of the media arrives by several different routes and in different forms. It may have to be sought out or ordered in advance, or its "discovery" may have to be systematically planned. At times it also has to be internally manufactured or constructed. Such a process of construction, like the selection of news, is not random and subjective. It takes place largely according to schemes of interpretation and of relevance which are those of the bureaucratic institutions that either are sources of news or process events . . . (McQuail, 1994, p. 215).

Included in monetary and staffing resources are technological constraints. Within the operational structure, there is socialization and what Gans (1979) mentioned as "the routinization in the news organization or assembly line" (p. 109). The routines of the news organization include using the beat system, maintaining balance on both sides of an issue, meeting deadlines, and relying on authoritative sources. It stands to reason that the media system, with its regular deadline schedule and constant barrage of unpredictable events, was forced to routinize its method for reporting the news by labeling, sorting, categorizing, classifying, etc. Bureaus have been created around the world to allow news organizations to generate news in a timely and regular manner. McQuail (1994) said, " . . . some events are more likely to become news than others, because they lend themselves to the formal procedures of gathering and processing by news organizations, which often work on a 24-

hour (or more frequent) publication time scale (p. 214).

Media-Level Constraints

This includes the different types of media and their various focuses. Television is most heavily influenced by economic and technological factors, including competitors, advertisers, audience preferences, monetary resources, and staffing capability. Newspapers and radio are influenced by those factors to a lesser extent, but are influenced nonetheless.

... mass media have grown up historically with a strong and widely shared image as having an important part to play in public life and being, in a certain sense, if not public property, then within the public domain. Certainly, this was and remains true of the newspaper, but it applies in different ways to most of the newer mass media (Shoemaker & Reese, 1991, p. 155).

Systemic Constraints

These environmental constraints would include political, business, legal, and ideological factors, in addition to information sources such as special interest groups and public relations campaigns, revenue sources such as advertisers and audiences, the economic environment, and technology.

News is first and foremost a social institution. First, news is an institutional method of making information available to consumers . . . Second, news is an ally of legitimated institutions. The secretary of state can float an idea in the news media. The "average" man or woman does not have such access to the media. Nor does an average citizen have the same power, held by legitimated politicians and bureaucrats, to convert his or her reactions to the news into public policies and programs (Tuchman, 1978, p. 4).

Framing

Walter Lippmann (1922) equated the press to "a beam of a searchlight that moves restlessly about, bringing one episode and then another out of darkness into vision" (pp. 43-44). Tuchman said, "News is a window on the world. Through its frame, Americans learn of themselves and others, of their own institutions, leaders, and lifestyles, and those of other nations and other people" (1978, p. 1). Pan and Kosicki's opinion was, "Framing is viewed as placing information in a unique context so that certain elements of the issue get a greater allocation of an individual's cognitive resources" (1993, p. 57). Shoemaker and Reese (1996) agreed.

Media content may be based on what happens in the physical world, but it singles out and highlights certain elements over others; and the media's own structured logic is imposed on those elements. Reality is necessarily manipulated when events and people are relocated into news or prime-time stories. The media can impose their own logic on assembled materials in a number of ways, including emphasizing certain behaviors and people and stereotyping (p. 37).

Tankard, Hendrickson, Silberman, Bliss, and Ghanem (1991) said, "Framing appears useful to researchers as a means of referring to how an event is portrayed in a particular news story. Mass communication research needs a method to examine not just what events are reported in the news media . . . but how the events are reported" (p. 1). According to Iyengar (1991), "the concept of framing refers to subtle alterations in the statement or presentation of judgment and choice problems" (p. 11). For example, framing involves the use of labeling, metaphors, catchphrases, depictions, visual images, and exemplars. A well-known definition of framing comes from Erving Goffman (1974). He used frame analysis to provide a systematic analysis of how expectations are used to make sense of

people and situations in everyday life, or a central organizing principle. "Each primary framework . . . or schemata of interpretation . . . allows its user to locate, perceive, identify, and label" (p. 21). He said, "I assume that definitions of a situation are built up in accordance with principles of organization which govern events—at least social ones—and our subjective involvement in them; frame is the word I use to refer to such of these basic elements as I am able to identify" (pp. 10-11). He used the example of brackets, "which establish the boundaries of a strip of any length, all times in which are to be transformed in the same way and at the same time . . . " (p. 254). Other suggested examples are that of a picture frame and the frame of a house (Tankard et al., 1991, pp. 4-5).

According to Pan and Kosicki (1993), "A theme is an idea that connects different semantic elements of a story (e.g., . . . quotes of sources . . . and background information) into a coherent whole. A theme is also called a frame" (p. 59). There are certain signifying elements of a theme which they referred to as:

structurally located lexical choices of codes constructed by following certain shared rules and conventions. They have varying functions in signification. They function as framing devices because they are recognizable and thus can be experienced, can be conceptualized into concrete elements of a discourse, can be arranged or manipulated by newsmakers, and can be communicated in the "transportation" sense of communications. In essence, they are tools for newsmakers to use in composing or constructing news discourse as well as psychological stimuli for audiences to process (p. 59).

Frames are operationalized in various ways, depending on the news subject and researcher. For example, Iyengar (1991) operationalized television's coverage into two types of frames: the episodic and the thematic coverage. "The episodic news frame focuses on specific events or particular cases while the thematic news frame places political issues

and events in some general context" (p. 2).

The episodic news frame takes the form of a case study or event-oriented report and depicts public issues in terms of concrete instances . . . the thematic frame, by contrast, places public issues in some more general or abstract context and takes the form of a "takeout," or "backgrounder" report directed at general outcomes or conditions (p. 14).

"A thematic structure of a news story, therefore, is a multilayer hierarchy with a theme being the central core connecting various subthemes as the major nodes that, in turn, are connected to supporting elements" (Pan & Kosicki, 1993, p. 61).

Pan and Kosicki (1993) said that framing analysis differs from the traditional approach to content analysis because it:

views news texts as consisting of organized symbolic devices that will interact with individual agents' memory for meaning construction. Second, framing analysis is not constrained within the content-free structuralistic approach of news discourse . . . (it accepts the formation of text by certain rules and) the multi-dimensional conception of news texts that will allow for cognitive short-cuts in both news production and consumption . . . third, it retains the systematic procedures of gathering data of news texts in order to identify the signifying elements that might be used by audience members (p. 58).

The part the media plays in framing an issue begins with attention on a particular event, followed by assignment of a particular concern or standpoint (frame). During the third step, the media weaves discrete events into a continuing story, linking them to secondary symbols and thus part of the recognized societal landscape (Lang & Lang, 1981, p. 465).

To maximize readers' interest, newspapers present continuing stories of conflict using ways that build suspense and cumulate toward a climax. The resulting narratives link the events and participants' actions selected for presentation across time, serializing and uniting them as episodes in unfolding agonistic dramas (Olson, 1995, p. 46).

Television news film uses specific camera shots as frames lending social meanings to spatial relationships. And sequences of those shots are then themselves framed . . . to create additional relationships among the components of a story. In all of these cases, two processes occur simultaneously: An occurrence is transformed into an event, and an event is transformed into a news story. The news frame organizes everyday reality and the news frame is part and parcel of everyday reality, for, as we have seen, the public character of news is an essential feature of news (Tuchman, 1978, p. 193).

In addition to all the common factors that affect journalistic framing, some unique factors such as scientific knowledge and the frequent crises in the space program influence the framing of the space program.

Crisis Frames

Radio and television newscasts, as well as newspapers, have long been relied upon by people for general information, entertainment, and accurate recounting of events during times of crisis.

Within society, an important element is the amount of disorder, conflict, and change. When there is a great deal of change in society, there is also a great deal of uncertainty in the public. At these times, people's dependency on media information is high. Media systems themselves differ in the number and centrality of information functions they serve . . . Similarly, the more important or central some of these functions are to the smooth working of the society, the greater the dependency on the media in society (Severin & Tankard, 1992, p. 263).

The National Research Council's studies of disaster identified five stages in society's response to crisis. These are the pre-disaster period; the period of detection and communication of a specific threat; the period of immediate, relatively unorganized response; the period of organized social response; and the long-run post-disaster period when society is restored to equilibrium and the permanent effects of the disaster have been

incorporated into it. "When a crisis interrupts the slow, ongoing rhythms of communication . . . the rate of information flow is enormously increased. A message signals the emergency. Information rushes to and from the point of crisis, which becomes a new focus of attention as the system strives to adjust to the problem" (Greenberg & Parker, 1965, pp. 5-6).

Chronic conditions become news only when they reach astounding levels that threaten large-scale cataclysm through famine, depression, war, or revolution. The "crisis cycle" portrayed in the news is classic dramatic fare, with rising action, falling action, sharply drawn characters, and, of course, plot resolutions. By its very definition, crisis is something that will subside and be resolved (Bennett, 1988, p. 24).

Olson (1995) said:

. . . three types of form, qualitative, syllogistic, and repetitive, are especially relevant to how conflict coverage maintains interest by creating suspense and cultivates expectations for the development of a conflict . . . In qualitative form, the presence of one quality prepares the audience for the introduction of another. Syllogistic form involves the predictable advance of an idea from premises consisting of promises or commitments created by the plot to subsequent episodes that make a fitting conclusion to those promises (p. 47).

Repetitive refers to ongoing coverage of the conflict, slightly differing in approach over time. Journalists use certain frames to tell interesting and dramatic stories to attract and hold audiences, and audiences find such conflict coverage especially appealing (p. 57).

Frames can be affected by many factors, and are useful in compartmentalizing the complicated plot which is often common in crises situations, according to Bennett (1988):

News stories would become undramatic and too complicated to grasp if their plots were strained to include multiple issues and explanations of larger institutional processes. The fragmentation of information is exaggerated still further by the severe space limits imposed by nearly all media for fear of boring readers and viewers with "too much information." Thus, the news comes to us in sketchy

dramatic capsules that make it difficult to see the connections across issues or even to follow the development of a particular issue over time (p. 24).

According to Gans (1979), hard news can fall into one of two categories: the routine activities of public officials and disorder news, which reports threats to various kinds of order, as well as measures taken to restore order (p. 52). Disorder stories fall into four major categories, he said, which are "natural, technological, social, and moral. Natural disorder news deals with natural disasters, such as floods and earthquakes, as well as industrial accidents which can be ascribed to natural forces, such as many but not all plane crashes or mine cave-ins. Technological disorder concerns accidents which cannot be ascribed to nature" (p. 53).

In a study of television news in 1967, 1971, and 1975, he identified eight non-war domestic activities that were most frequent or important. These included government activities, protests, crimes and investigations, and disasters (pp. 16-17).

During the past 30 years, obviously there have been some crises situations in the United States: the assassinations of Martin Luther King, Jr. and Robert Kennedy, Jr.; the Vietnam War, the slayings at Kent State University, and the Watts riots; the Watergate scandal and resignation of President Nixon; the attempted assassination of President Ford; the Iran hostage crisis; the attempted assassination of President Reagan; the Gulf War; the Los Angeles riots; the bombings of the World Trade Center in New York and the Alfred P. Murrah federal building in Oklahoma City; and the crash of TWA Flight 800. But the two that stand out most vividly in the minds of Americans are the assassination of President Kennedy in 1963 and the shuttle Challenger explosion in 1986.

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Certainly, lives were lost in the previously mentioned crises, but the lives lost in the latter crises were those of people who had gained much media attention prior to their deaths. President Kennedy's political career had been chronicled by the press since before his days in the Senate, when his father was a business tycoon and later, served as American ambassador. The news of his death shocked the world.

So in Dallas on November 22, the reporters, broadcasters, photographers, and their equipment were operating routinely until 12:30. . . . Then came the bulletin that roused the men and facilities of communication to such efforts that it was many days before information from Dallas and the coverage of the American chief executive could again be called routine (Greenberg & Parker, 1965, p. 6).

Immediacy was one striking quality of the information flow during those days of crisis; another was the pervasiveness of it. For all practical purposes there was no other news story in America during those four days, and all the mass media concentrated on telling it. There were many times during those days when a majority of all Americans were apparently looking at the same events and hearing the same words from their television sets. . . . Never before, it is safe to say, has such a large proportion of the American people been able to feel so instantly and closely, for three and a half days, a part of events and deeds of great national significance (Greenberg & Parker, 1965, p. 4).

Media coverage of the Challenger explosion was similar in that people still recall where they were at the time of disaster. The media first served as a source of emotional distress and then as a healer of the agitation.

First, television presented the viewer with incredible and disturbing images of the Shuttle's last moments. Second, television both personalized and sensationalized the story, no doubt increasing some viewers' emotional upset through in-depth reporting on the astronauts and their surviving family members. Finally, in the days following the explosion, television functioned as if it were a psycho-therapist by dispensing advice and acting as a channel for the nation's outpouring of emotion (Kubey & Peluso, 1990, p. 75).

Such coverage of an event, whether it is the Kennedy assassination, the Challenger explosion, or the O.J. Simpson trial, strikes a responsive chord among viewers, according to Nimmo and Combs (1985).

Since news is only an aspect of the more general fare in television programming, it is not surprising that TV news draws from the same tradition of production values that pervades the entertainment medium. Adventure, mystery, romance, pathos, and nightmare fill children's programming, sports coverage, soap operas, situation comedies, docudramas, and other shows . . . Crisis reporting offers opportunities for what is known in the trade as a "continuing story," one that runs night after night, simplifies complex details around a few easily grasped symbols, and becomes almost a mini-series (p. 18).

When reporting crisis events, the media often uses the *system* frame, to place blame or calm fears. Nimmo and Combs (1985) maintained that the pattern of ABC news reports was consistent: "those in charge of the system have rendered it helpless in the face of crisis" (p. 198). CBS used the charge that "life can go on if the system works." The network explained that crises do occur but "the system triumphs because the responsible, trustworthy elite that manages it relieves the danger. An orderly society is thus restored, and in a properly managed, orderly society, life can indeed go on" (p. 197). NBC used the same approach, but advocated that people learn from the crisis. The network approached crises from the standpoint that each situation has a long history that is embedded in a social, political, economic, religious, and human context (p. 184). "NBC, by demystifying crises, demystifies life, thus examining it and making it worth living" (p. 197).

Indeed, the mass media often translate a news event into a broad category of a larger issue, as it seeks to give the event meaning for its audience. For example, a crisis such as the Challenger explosion was interpreted by the U.S. media into the more general issue of

NASA incompetence and the need for higher funding for the U.S. space program.

(Ironically, NASA blamed the media for rushing it into launching the Challenger in the first place.)

Because people view the news media as narrating events primarily controlled by others, they do not hold the news media responsible when expectations shaped by the form of conflict coverage are violated . . . Instead, news audiences hold the characters reported on . . . responsible to fulfill the demands of the narrative form (Olson, 1995, p. 56).

In their analysis of implications of the guard dog role, Donohue, Tichenor, and Olien (1985) held a similar view, hypothesizing that the media are more likely to report attacks on individuals in power roles than attacks on power structures. "Although authority issues were at stake in both Watergate and Irangate, it should be noted that these crises contained on the authority roles and not on the system itself . . . If the general welfare of the system is threatened, the welfare of the individual is at risk and there is little question in that case the individual will be sacrificed" (pp. 125-126).

It has been further hypothesized that "in societies with developed media systems, audience dependency on media information increases as the level of structural instability (societal conflict and change) increases" (DeFleur & Ball-Rokeach, 1982, p. 242); "it is socially responsible for news media to calm rather than ignite public fears" (Baran & Davis, 1995, p. 315); ". . . we have evidence that the failure of the media to call public attention to a tragedy can have damaging psychological effects" (Deppa & Sharp, 1991, p. 161).

. . . in the hours after John Kennedy's assassination, network anchorpersons and reporters frequently pointed out that the country was not panicking. Later I found out that they were, in fact, worried about possible panics and immediately looked for stories which would indicate that none were taking place. They also sought to allay panic by reporting that the transition of Lyndon Johnson to

the presidency was taking place quickly and in an orderly fashion. For the same reason, the anchorpersons also took pains to dispel a rumor that the Russians were about to take advantage of the president's death to launch a war (Gans, 1979, p. 55).

Science Frames

Scientific information can be framed in several ways, depending on the topical nature of an issue. It can be a source of information about new discoveries that are either related or unrelated to current news activities; it can be a trend-setting issue that will turn the world upside down, again related or unrelated to current news activities; it can provide life-saving information in the face of crisis such as in natural or nuclear disasters; or it can provide historical perspective of how current situations have evolved.

Because technology and science play such a large role in today's society, it stands to reason that more research is being devoted to scientific journalism. Thus it is recognized that scientists and journalists should work together to frame issues in an understandable way in order to achieve maximum audience interest.

A study by Renate G. Bader (1990) found that more dailies have science sections than they did in 1978 (p. 88). Bader attributed this interest to the growing impact of science and technology, and its impact as educational and entertainment tools.

Peters (1995) attributed another reason for an increase in science issues and the fact that they are often framed as sources of conflict or resolution.

The increase in science and technology coverage is mainly due to the rise of another form of coverage focusing on societal problems and conflicts to which science and technology may be the subject of the problem or conflict, they may be used by one or both sides to support a political stand, or it may be expected that science or technology will find a solution to a problem or resolve the con-

flict by providing an ultimate answer to the issue (p. 32).

This pressure may explain the scientific community's reluctance to share its information with the media and public. If an issue is controversial, scientists believe they may be held responsible or looked upon as sources for resolution.

There are other reasons that may prohibit scientists from providing information to journalists. For example, the media are seen as watchdogs toward those in power, much more so than the scientific community. Scientists, on the other hand, believe journalists should be less biased and emotional, and more objective in reporting scientific issues. The third "largest difference concerns the entertainment function of journalism, which is less accepted by experts (scientists) than by journalists" (p. 39). In summary, scientists "have different expectations from journalists concerning the style of information: they want information displayed more seriously and unpolitically than journalists and more than journalists they want it to address reason rather than senses and emotion" (p. 39).

According to Peters (1995), the additional roadblocks come in the translation and accuracy of information.

The problem scientists experience when talking to lay people is not only that they have to explain their findings in simple language and to find metaphors and models illustrating abstract and unfamiliar concepts, but also that they face an information demand very different from that of their fellow scientists. . . . Most of a typical research article is devoted to stating factual claims and proving them. However, typical journalistic accounts of scientific research . . . address in more detail questions of why the research is performed, who performs it, what its meaning is and what its impact is likely to be (p. 35).

Within science, speculation is discredited and as an ideal everything must be provable and as accurate and up-to-date as possible. One of the consequences of this norm is that scientists should avoid making statements on matters on which they are not expert. Furthermore it is part of the scientific culture that

science be value-free. According to the traditional self-understanding of science, evaluations are beyond science and, hence, should be avoided if speaking as a scientist (p. 43).

On the other hand, part of the journalists' frustration has to be in the handling of technical issues by the scientific community. A case in point was NASA's procedure in handling the Challenger explosion and other accidents such as the Apollo 1 fire.

"Immediately following the (Challenger) accident, NASA did impound all of the available information and cut itself off from the press" (Rowland, 1986, p. 141). For a period afterward, it maintained a strict silence about the event and its investigation. Scientists would maintain that it was NASA's way of verifying all information before releasing a formal report, rather than relying on pure speculation about the disaster.

Despite these differences, the presence of scientific and technological issues has become increasingly relevant as the public struggles to explain certain outcomes. The media's ability to work within the framework of the scientific community is vital to the explanation of how things are.

CHAPTER III

Methodology

Framing analysis was chosen for this thesis because it seemed to be a natural way to study media coverage of the space program. In addition to the journalistic frames chosen by the media, there are other factors such as knowledge of science and the frequent crises in space travel that influence the framing of the space program. To the best of the researcher's knowledge, no other study has been conducted using framing analysis in the area of the U.S. space program. Therefore, these efforts are pioneering and will contribute greatly to the literature inasmuch as they will bring attention to the media's view of the space program and how media coverage of major issues changes over time. Moreover, the frames that were developed may lead to the accumulation of a unique research base which benefits future studies.

Media Types

The media that were analyzed were *The Washington Post* and *Popular Science* on the dates previously mentioned, and television broadcasts on CBS, which were obtained from the Vanderbilt Television News Archive for the years 1968 through 1986. The Vanderbilt Television News Archive began systematic tapings of nightly newscasts in 1968, so newspaper and periodical accounts sufficed for mission analysis from 1962 through 1967. Analysis consisted of 83 newspaper articles, 13 periodical articles, and 13 television broadcasts.

Sample Periods/Critical Events

The following missions represent those which featured manned spacecraft and some sort of crisis during the time in flight.

<u>Year</u>	<u>Mission Dates</u>
1962	February 20
1963	May 15-16
1966	March 16
	June 3-6
1967	January 27
1968	October 11-22
1969	July 16-24
	November 14-24
1970	April 11-17
1971	January 31-February 9
	July 26-August 7
1972	April 16-27
	December 7-19
1986	January 28

Description of Analysis

All articles from both publications and all newscasts from CBS on the dates of the launches were read and watched, and coded in terms of the specific considerations associated with coverage of events using the frames listed below. These frames were pre-tested and modified before they were used in the study, whereby 10% of the test materials were analyzed and the intercoder reliability of the data was found to be 90% reliable.

The test frames include the following:

Pageantry, phenomenon, and spacial conquest. An article or newscast was coded as using a *conquest frame* if it used adjectives such as awe-inspiring, first, spectacular, unbelievable, etc. This frame was most applicable to the first Mercury, Gemini, and

Apollo missions as ground-breaking accomplishments were made by NASA in its quest to reach the moon. These two quotes are examples of the conquest frame: "Once again, the U.S. has resumed what many men call 'the greatest technological feat in man's history'--the step by step project to land men on the moon" (Cohn, 1968, p. 1). "4,000 newsmen, many of whom had never written a space story before in their lives, but they came for Apollo 11" (Cronkite, 1969).

Scientific advancement or achievement. An article or newscast was coded as using a *scientific achievement frame* if it discussed the study of moonquakes, volcanic eruptions, the moon's formation and rock specimens, satellite operations, human adaptation to space life, solar physics, the use of Velcro, and the like. These discoveries were translated to the impact on the average citizen's life, such as in the use of weather satellites, for example. Though it is the manned flights that once captured attention, NASA's achievements in satellite transmission alone is astounding--telephone, telex, television, radar, and microwave. Its discoveries related to technology would have made breakthroughs in the fields of medicine and computer science much slower in their advancement. Among those medical discoveries which were made in conjunction with the space program include heart pacemakers, imaging equipment, and laser image surgery. "The growth of these plants . . . may mean crops can be grown on the moon someday to supply food, water and oxygen to earth visitors. . . . The enhanced growth of some plants, first noticed in late August, was one of the surprising aftermaths of Apollo 11" (Cohn, 1969, p. 14). "The moon . . . can unlock many secrets about the formation of the earth and the solar system" (Auerbach, 1970, p. 4).

America's race to the moon to achieve superiority over Russians. An article or newscast was coded as using a *race against Russia frame* if it included such themes as U.S. superiority, patriotism, and competition. It applied to those missions in the 1960s which were given priority by President Kennedy as he sought to beat the Russians to the moon. Coverage was also devoted to what was known about the progress of the Russian quest to the moon. In a January 28, 1967 *Washington Post* article titled, "Entire Crew of Mission Set for Feb. 21 is Lost," it was written, "The test was one of a final series in preparation for their flight next month—the first manned flight in the final phase of America's effort to land men on the moon by the end of this decade" (p. 1).

Danger to human life or danger averted. An article or newscast was coded as using a *danger frame* if it contained references to heroics, astronauts' backgrounds and family, and uncertainty. It applied to those missions that contained an element of danger, such as Apollo 13 and the shuttle Challenger, which are most well known: "Between now and splashdown, the Apollo 13 astronauts must accomplish crucial tasks using a disabled command craft and a jury-rig fashioned from the lunar lander. These are the bare minimum for safe return" (Cohn, 1970, p. 1). "Death in space was on the minds of America's space pioneers from the day the United States decided to put a man in space" (Auerbach, 1986, p. 24). In addition, in some instances, newscasters and reporters would enlist the advice of scientific experts for speculation.

System (or other source) failure or triumph. An article or newscast was coded as using a *system failure or success frame* if, during times of crisis or success, journalists attempted to explain a problem or offered praise for a job well done. If it was a situation of

crisis, the broadcaster or journalist may have offered methods of resolution, depending on what he or she deemed to be the source of the problem. There were no examples of this frame found in the research data.

NASA public relations information. An article or newscast was coded as using a *public relations information frame* if NASA provided education about a mission to the readers and viewers. Every mission which was covered by *The Washington Post* included step-by-step highlights of the mission. For example, in the Apollo 14 and 16 missions, readers were informed about the activities in which the astronauts would be taking part, hour-by-hour, such as waking time, dinner time, landing time, docking time, etc.

Routinization of space travel. An article or newscast was coded as using a *routinization of space travel frame* if it referred to missions after the Apollo 11 landing on the moon with indifference. As nothing could top such a feat, journalists and the American public seemed to lose interest in the space program: "The crew of Apollo 13—with little more to do than remember the things they forgot—coasted past the halfway point today in their quarter-million-mile journey to the moon" (Auerbach, 1970, p. 1). "America's sanguine attitude about manned space flight was shattered last night" (Simons, 1970, p. 1).

Waste of taxpayers' money. An article or newscast was coded as using a *taxpayer waste frame* if it included coverage of protests against the war and questioned what space exploration would bring to human life. This frame was especially prevalent during the Vietnam War when Americans were questioning many things, among them the continued expense of space exploration while an unpopular war waged on.

In the middle of man's second landing on the moon, a wag taped up this sign in the press room of the Manned Spacecraft Center here: "Apollo 12 is canceled due to lack of interest." There are many Americans who feel the same about Apollo 13 and all future moon missions. They feel that exploring the moon is a waste of money that could be better spent here on earth. Besides, they say, we've been there once, why go back again (Auerbach, 1970, p. 4)?

"The nation's priorities were out of joint. The billions spent on space should go to antipoverty and antipollutions programs" (Johnson, 1970, p. 12).

NASA public relations attempts. An article or newscast was coded as using a *public relations image frame* if it included phrases such as unqualified success or partial success; mission went as planned; from an engineering point of view, the flight was highly successful, to describe missions that suffered mishaps. During such crisis situations, NASA, known as one of the slickest self-promoters in Washington, sometimes sought to gloss over potentially life-threatening conditions.

NASA has been quite dependent on the media since its inception. Its image-conscious public affairs officials have always carefully managed the flow of information to build support and alleviate risk. For example, from the early 1960s, the first manned space capsules carried audio broadcasts with a 60-second delay in the tape.

Before each mission, *The Washington Post* would feature profiles on each of the astronauts, characterizing each as "an uncle figure," "an average man," "a swinger," "a cut-up," "cocky," "colorless," and other such descriptions. These profiles served to portray the astronauts in a human light and painted them as heroes for their efforts.

Television was never finer, the reception was perfect, the storm that threatened the landing area never materialized, and at every step the men and their crippled machine functioned flawlessly. The hatch door closed when it should, Aquarius was jettisoned with split-second timing and a memorable phrase, "farewell

Aquarius and we thank you," the heat shield did its job, the chutes opened as planned (Johnson, 1970, p. 1).

Loss of life, mourning, tragedy. An article or newscast was coded as using a *death frame* if it included key words such as death, tragedy, killed, explosion, etc.; most notably in accounts during the Challenger tragedy in 1986 and the Apollo 1 accident in 1967. "Astronauts knew there was nothing commonplace about a space launch and now we all know" (Goldberg, 1986). In a January 28, 1967 *Washington Post* article titled, "Entire Crew of Mission Set for Feb. 21 is Lost," it was written, "America's first three Apollo moonshot astronauts were killed tonight when a flash fire gutted their space capsule as they were making a launch pad test" (p. 1).

NASA error/investigation. An article or newscast was coded as using an *error/investigation frame* if it described NASA's negligence in the Challenger accident and the ensuing investigation. "Challenger's catastrophe yesterday came at the end of a long chain of delays with causes as various as a sandstorm in Senegal, a recalcitrant titanium bolt and a tired ground crew" (Feaver, 1986, p. 3). "Officials of the companies that built the space shuttle Challenger said yesterday they would begin internal investigations to determine to what extent—if any—their components might have contributed to the craft's explosion" (Schrage, 1986, p. 23).

The research examined the relationship between media coverage of the space program and the frames that were evident in that coverage. Coding parameters were created based on the aforementioned descriptions in order to analyze each frame and determine differences and/or similarities. Statistical tools were used to examine the changes over time

and the differences between media, in addition to qualitative analyses of the frames. These relationships were compared and contrasted during the 24-year period to determine whether or not there had been any changes in the coverage and/or content. It is now possible to make a determination of whether or not media coverage of the space program had increased/decreased or otherwise changed during the last 24 years, and attribute some causes to that exposure. Theories on general media analysis over a span of years can be formulated based on these findings.

Research Questions

The basic assumption behind this research is that the media do not devote a great deal of attention to the U.S. space program. When the program remained in its infancy, the press, as was the public, was quite excited by the idea of space travel. It was predicted that the infatuation quickly faded to the point that the only time a mission was given any extensive mention was when a human life was hanging by a thread, or it held another unusual quality, as was the case with the last mission of the Apollo program. The study assumed that everyone expressed sadness and dismay over disastrous incidents, or brief interest in a unique aspect of a mission, but quickly returned to the feelings of malaise about the space program.

Specifically, this study aims to address these questions and related hypotheses:

Question 1. What were the major frames used by the news media to cover NASA missions during the 25-year height of the space program?

Hypothesis 1. The most frequently used frames are likely to be conquest, scientific achievement, and danger.

Question 2. To what extent and how did the frames change over time?

Hypothesis 2. The frames of conquest, scientific achievement, and race against Russia would decline over time, while the frames of public relations image, routinization of space travel, and taxpayer waste would increase over time.

Question 3. What was the difference between the non-crisis frames and crisis frames?

Hypothesis 3. The frequency of crisis coverage would increase over time.

Question 4. What was the difference between television frames and print frames?

Hypothesis 4. Television would carry more crisis-related stories over the years because of the sensational nature of television, while print coverage of crisis issues would decline.

Question 5. What was the difference between the frames used by science-oriented media and those used by the popular media?

Hypothesis 5. Science-oriented media would carry more science-related topics than the popular media, no matter what the year.

CHAPTER IV

Results

Introduction

This chapter presents the results of the content analysis. Statistical methods were used to examine the changes over time and the differences between media, in addition to qualitative analyses of the frames.

Predominant Frames

To examine the major frames used by the news media to cover NASA missions during the 25-year height of the space program, it was thought that the most frequently used frames were likely to be conquest, scientific achievement, and danger.

Table 1

Frames in U.S. Media's Coverage of the Space Program from 1962 to 1986

Frame	Number of frames	Percent
Conquest	21	19
Science achievement	14	13
Race/Russia	2	2
Danger	22	20
PR info	5	5
Routine	8	7
Tax waste	1	1
PR image	22	20
Death/tragedy	9	8
Investigation	5	5
Total	109	100

Table 1 shows the most frequently used frames were public relations image, 20%, danger, 20%, and conquest, 19% (see Table 1). The number of frames for public relations image, danger, and conquest were 22, 22, and 21, respectively. Thus the percentages were higher for these three frames than the other 11 examined. Scientific achievement was not as significant as the researcher anticipated at only 13%, way below the percentage of the public relations image frame. Therefore, the theory that the most likely frames would be conquest, scientific achievement, and danger is partially supported.

In analyzing the data to determine which articles and newscasts could be categorized in each frame, these examples were found as evidence of the conquest frame:

"Implausible as it sounds, three men were ready today to start a voyage to the surface of the moon" (O'Toole, 1969, p. 1).

"With the entire world watching, three Americans left earth today in a bold and ambitious attempt to land on the moon" (O'Toole, 1969, p. 1).

The data included references to science and lunar information, which were categorized as scientific achievement.

In an all-out attempt to fly their mission for science, Conrad and Bean will try to set the landing craft they call Intrepid in a flat field 500 feet from a Surveyor spacecraft that landed in the moon's Ocean of Storms almost three years ago (O'Toole, 1969, p. 1).

"Mascons--whose name is short for 'mass concentrations'--are pockets of material near the lunar surface which have a greater density than surrounding material and exert a strong gravitation pull" (Brett, 1971, p. 2).

In the articles and newscasts, references were made to the perils that faced the astronauts on every mission. These examples were evidence of the danger frame.

"Despite an air of quiet confidence at America's moonport, space officials were quick to caution that lunar landings are still not an everyday matter" (O'Toole, 1969, p. 1).

"The men of Apollo 12 were on their way to the moon tonight after surviving an apparent lightning strike that knocked out their main navigation and radio systems on liftoff" (O'Toole, 1969, p. 1).

Wording in the articles and newscasts which referenced victory in a mission, even sometimes in the face of danger, were coded as part of the public relations image frame.

"Yesterday's tragedy at Cape Kennedy was a severe body blow to the United States' ambitious plans for getting men to the moon's surface in this decade. But it was not a knockout" (Simons, 1967, p. 1).

"The Nation's man-to-the-moon program opened in triumph today as astronauts Wally Schirra, Donn Eisele and Walter Cunningham soared into space in the first manned Apollo flight" (O'Toole, 1968, p. 1).

Frame Change Over Time

To examine to what extent and how the frames changed over time, it was thought that the frames of conquest, scientific achievement, and race against Russia would decline over time, while the frames of public relations image, routinization of space travel, and taxpayer waste would increase over time.

Table 2

Primary Frames of the Space Program in the U.S. Media By Year from 1962 to 1986

Frame	Year									
	62	63	66	67	68	69	70	71	72	86
Conquest			1		2	6	2	7	3	
Science achvmt.			1			3	4	4	1	1
Race/Russia	1			1						
Danger	1		1			4	6	4	2	4
PR info			1		1			1	2	
Routine							3		2	3
Tax waste								1		
PR image		1		1	2	1	4	8	4	1
Death/tragedy				1						8
Investigation										5
Column total	2	1	4	3	5	14	19	25	14	22
Percentage	2	1	4	3	5	13	17	23	13	20

As indicated in Table 2, the frames of conquest, danger, public relations image, and scientific achievement increased over time. More instances of conquest were reported in the later years, especially 1969 and 1971, than in the early years, when presumably more discoveries were made. The highest occurrence of danger was also well into the Apollo program in 1970, naturally during the Apollo 13 crisis. Public relations image was barely a factor until the early 1970s, hitting its peak in 1971. While scientific achievement was not a significant frame overall, it did increase over time, hitting its peak in the early 1970s.

There were no frames which noticeably decreased over time (see Table 2). The race against Russia did not decrease and, in fact, was barely a factor in the media coverage.

Nor was there an increase in routinization of space travel and taxpayer waste. Therefore, the theory is not supported as the frames of conquest, scientific achievement, and race against Russia did not decline over time, and the only frame that increased in coverage was public relations image.

In examining the data for evidence that would correspond with each frame, some examples of the race against Russia frame were found, such as:

"Zond 5—the Soviet spacecraft that circled the moon—could also have been the prototype of a spectacular future planetary spacecraft 'of great capability' . . . " (Cohn, 1968, p. 9).

"The Soviet Union's space dogs came home today after a 22-day flight and a cautious Soviet statement indicated the canine trailblazers might have found some hazards for men in space flight lasting three weeks" (Loory, 1966, p. 1).

The data included references to the routine nature of the space program with the following examples:

"The space age had become a bore" (Johnson, 1970, p. 1).

For much of the nation, yesterday's tragedy was even more shocking because Americans had come to take space travel for granted—a contrast to the early space shots when all astronauts were considered celebrities, and Americans watched every countdown, holding their breath in the moments after each liftoff (Russakoff & Russell, 1986, p. 16).

The media made minimal references to the amount of taxpayer funds that were being used to pay for the space program, except for examples such as that in a *Washington Post* article dated January 31, 1971, "Apollo 14 Will Cost U.S. \$400 Million." It was written,

"The flight of Apollo 14 to the moon will cost the United States \$400 million--\$25 million more than Apollo 13 and as much as \$50 million more than other Apollo flights" (p. 24).

In a separate article on the same page, "\$20 Million Spent for Safer Trip," it was written,

"The accident in space that almost cost the lives of the three Apollo 13 astronauts has forced the space agency to spend \$20 million changing the Apollo 14 spacecraft" (p. 24).

Difference Between Non-Crisis and Crisis Frames

To examine the difference between the non-crisis frames and crisis frames, it was thought that the frequency of crisis coverage would increase over time. Crisis coverage was defined by the frames of danger, death/tragedy, and investigation. Non-crisis coverage was defined by such frames as conquest, scientific achievement, race against Russia, system failure/triumph, public relations information, routinization of the space program, taxpayer waste, and public relations image.

Table 3

Crisis Frames vs. Non-Crisis Frames in U.S. Media's Coverage of the Space Program

From 1962 to 1968

Frame	Year									
	62	63	66	67	68	69	70	71	72	86
Non-crisis	1	1	3	2	5	10	13	21	12	5
Crisis	1		1	1		4	6	4	2	17
Column total	2	1	4	3	5	14	19	25	14	22
Percentage	2	1	4	3	5	13	17	23	13	20

As Table 3 shows, the frequency of crisis coverage reached a peak level in 1986. However, these numbers seem to be skewed by the Challenger accident, which resulted in more instances of crisis stories, 17, than in any other year. Otherwise, the frequency of non-crisis issues tended to be quite consistent and even peaked at 21 instances in 1971 when Apollo 13 suffered its near-disaster (see Table 3). There is no clear reason for it, and any speculation is unwarranted. Thus, the theory is not supported because the frequency of crisis coverage did not increase over time. It simply increased during one instance of a space disaster.

During examination of the data to classify each article according to frame, examples of the death/tragedy frame were quite obvious, as indicated by a January 28, 1967 *Washington Post* article titled, "Freeman, See and Bassett Were Killed." It was written, "... the Nation has yet to lose its first astronaut during an actual mission in space" (p. 7). A more current example of the death/tragedy frame nearly 20 years later contradicts the previous example:

The National Aeronautics and Space Administration set in motion today a long, slow and extraordinarily complex search for the cause of the catastrophic explosion that killed seven astronauts and destroyed the space shuttle Challenger in the worst disaster in space-flight history" (O'Toole, 1986, p. 1).

Difference Between Television and Print Frames

To examine the difference between television frames and print frames, it was thought that crisis-related issues would be more prevalent on television than in the other two types of media because of the more visual nature of television news, while print coverage of crisis-related stories would decline. Crisis coverage was defined by the frames of danger.

death/tragedy, and investigation. Non-crisis coverage was defined by such frames as conquest, scientific achievement, race against Russia, system failure/triumph, public relations information, routinization of the space program, taxpayer waste, and public relations image.

Table 4

Crisis Frames vs. Non-Crisis Frames in Television, Science Periodicals, and Newspapers in the U.S. Media's Coverage of the Space Program by Year From 1968 to 1986

Television.

Frame	Percentage of frames						Row total (%)
	1968 (N=1)	1969 (N=3)	1970 (N=3)	1971 (N=2)	1972 (N=2)	1986 (N=7)	
Non-crisis	100	67	33	100	100	71.5	61.5
Crisis		33	67			28.5	38.5

Science Periodicals.

Frame	Percentage of frames						Row total (%)
	1962 (N=2)	1963 (N=1)	1966 (N=2)	1968 (N=1)	1969 (N=3)	1971 (N=1)	
Non-crisis	50	100	50	100	100	100	84.6
Crisis	50		50				15.4

Newspapers.

Frame	Percentage of frames								Row
	1966 (N=2)	1967 (N=3)	1968 (N=3)	1969 (N=8)	1970 (N=16)	1971 (N=22)	1972 (N=9)	1986 (N=20)	total (%) (N=83)
Non-crisis	100	67	100	62.5	75	82	78	25	65.1
Crisis		33		37.5	25	18	22	75	34.9

As shown in Table 4, television coverage of crises was slightly greater than newspaper. at 38.5% versus 34.9%. The amount of non-crisis coverage by television is significantly greater than crisis coverage, at 61.5% versus 38.5%. Furthermore, this table shows that crisis coverage did not increase through the years but was rather present during the years of space crises, 1970 and 1986, only. One instance was recorded in 1969 as well.

The same is true for science periodicals, at 84.6% for non-crisis subject matter, and 15.4% for crisis subject matter. Again, the non-crisis frames were consistent through the years while crisis frames only appear in two years, 1962 and 1966.

For newspapers, non-crisis issues commanded 65.1% of coverage and crisis issues totaled 34.9% of the coverage. Again, the presence of non-crisis reporting is consistent through the years, with the exception of a peak in 1971. As stated earlier, the instances of crisis reporting increased steadily, peaking at 75% in 1986, the year of the Challenger accident.

The theory that television would carry more crisis-related stories over the years because of the current view that the medium is sensational, while print coverage of crisis-related

stories would decline, is not supported. This is because although the amount of crisis-related subject matter is slightly greater for television, the instances of crisis-related stories increased for newspaper.

Difference Between Science and Popular Media

To examine the difference between the frames used by science-oriented media and those used by the popular media, it was thought that science-oriented media would carry more science-related topics than that of the popular media, no matter what the year. Scientific achievement was the frame that was used to study this.

Table 5

Percentage of Frames in U.S. Media's Coverage of the Space Program By Medium

Frame	Television (%) (N=13)	Periodical (%) (N=13)	Newspaper (%) (N=83)	Total (%) (N=109)
Conquest	39	15	17	19
Science Achvmt.		23	13	13
Race/Russia		8	1	2
Danger	23	15	21	20
PR info			6	5
Routine	15	8	6	7
Tax waste			1	1
PR image	8	31	21	20
Death/tragedy	15		8	8

Investigation			6	5
Total (%)	11.9	11.9	76.1	100

As Table 5 shows, science periodicals carried more science-related topics, 23%, than that of newspapers, 13%, and television, 0%. Thus, the theory that science-oriented media would carry more science-related topics than that of the popular media, no matter what the year, is supported.

CHAPTER V

Summary

Today's space program receives a fair amount of coverage but not repeatedly with each shuttle mission as in the Apollo days. This year, NASA seemed to gain publicity ground for the first time in many years with a number of large media splashdowns. Namely, the space shuttle Atlantis in March 1996 made news, during which mission Astronaut Shannon Lucid was transferred to the Russian space station, Mir, for a subsequent six-month stay. That mission was threatened by heat buildup and a leaky steering system. In July 1996, NASA faced criticism of its plan to reduce shuttle program costs by the end of the decade. Fears of safety were at issue in the criticism. In August 1996, NASA announced that it had discovered a meteorite from Mars that dated 3.6 billion years ago. The discovery was billed as NASA's way of recapturing the glory days of Apollo, a dramatic, high visibility exploration period in NASA's history that many believe could not be sustained indefinitely. The retrieval of Shannon Lucid in September 1996 was met with obstacles as a hydraulic power unit on the shuttle Atlantis failed. The mission already had been delayed nearly seven weeks because of booster rocket problems and two hurricanes. It ended in success, however, as Lucid returned to Earth with much fanfare.

The space station is not a technological test bed. It is a social test bed. It will be proof principle that Russia, Europe, Japan, Canada can work together to do things of benefit, not to build weapons aimed at each other (Goldin, 1995).

Media coverage of the space program was not found to be most prominent or frequent during crises situations, according to this statistical analysis. Only two of the five theories

were supported. The most frequent frames would be conquest, scientific achievement, and danger, was partially supported, in that public relations image was more prominent than scientific achievement. The reason for the higher occurrence of this frame could be attributed to the high profile of the space program during the years examined. This frame peaked in 1971, presumably in response to the aftermath of the Apollo 13 crisis, and in an effort to revive a space program which was viewed by some as routine.

For the other two frames, conquest and danger, it would stand to reason that, in addition to the high profile, the space program was a very dangerous undertaking in the early years. That factor, combined with the conquest/adventure element, would account for the high occurrence of those frames.

There were a great many discoveries made during the early days of space exploration. Therefore, it is surprising that the news media did not report even more information about how the findings would benefit the American public. While the scientific achievement frame was not a significant frame overall, it increased over time and peaked in the early 1970s. Again, this may have been an attempt to boost the interest of the American people.

In examining the difference between science and popular media, it would seem that science-oriented periodicals would be more inclined to feature the scientific achievements of the space program than the popular media of television or newspaper. In this study, this was found to be true for television, probably because the clips examined were from the nightly news on the day of the launch, not on subsequent days when more time for follow up is permitted. It was also true for newspapers. While the newspaper medium was more

inclined to explain the scientific benefits of the space program, it did so at a lesser rate than the science periodicals, at 13% compared with 23% for science periodicals.

Nonetheless, newspapers are beginning to increase their coverage of scientific issues, as Bader's study in 1990 indicated, attributing the increased interest in technology as a primary reason that more daily newspapers have science sections. Perhaps the popular media is reporting more scientific information because they are addressing a larger audience with varying backgrounds, levels of experience, and years of education, and it is necessary to explain the benefits of technology. Conversely, scientific periodicals speak to an audience that is predisposed to the notions of the scientific world and the amount of coverage found in that medium is justified.

The other theories were not supported. There were no frames which noticeably decreased over time, as indicated in the examination of the change of frames over time. In fact, the frames of conquest, scientific achievement, and public relations image increased somewhat, as indicated before. The race against Russia was not a significant frame either way. If one were to speculate, it could be suggested that the U.S. government was imposing strict restrictions against media leaks. Indeed, paranoia about communism and Russian spies was very pervasive in those days, and perhaps the media was instructed not to give away government secrets about its plans for the space program. However, there is no evidence to support this line of reasoning.

The reason that routinization of space travel and taxpayer waste did not increase could be explained with the same reason that public relations image and scientific achievement did increase—perhaps in an effort to maintain the image of the space program, given NASA's

sensitivity to public opinion in the early days of space exploration.

In examining the difference between television and print frames, the findings dispelled the theory that television as a whole is sensational. Perhaps the medium reached its sensational level during the last 10 to 15 years, the study concludes. The same is true for science periodicals, which recorded a high level of non-crisis subject matter. The only instances of crisis-related subject matter were found in 1962 and 1966. This may be attributed to the early days of space exploration when the American public was fearful of NASA's attempt to send a man to the moon when rockets were crashing repeatedly. Non-crisis issues dominated newspapers as well, except for a crisis peak in 1971. This may have been in response to the Apollo 13 near-tragedy, and the media's and NASA's attempts to calm fears about the safety of the space program.

The findings pointed toward more positive media coverage of the space program during 1962 through 1986 rather than negative media coverage. Media coverage of the space program was consistent and did not focus its sole attention to times of tragedy, as was thought. While every mission had some sort of mishap, the media did not seek them out every time in an effort to sell newspapers or boost ratings.

Conclusion

The results indicated a change in reporting that has occurred during the past 10 to 15 years. The media were once considered by all to be a reliable and fair authority on the topics of the day. People turned to their daily newspapers, which were heralded as the first legitimate news authorities. And, back in the early days of television, there were three networks that brought up-to-the-minute news into families' living rooms. Even Walter

Cronkite's signature sign-off reflected this trust--"And that's the way it is . . ."

Because of what some today would view as limited choices, people had a common bond through the television they watched, and the newspapers and magazines they read. Perhaps the most illustrative example of that is the reaction of the American public to the assassination of President Kennedy. As previously cited, Greenberg and Parker (1965) also pointed to this commonality. "There were many times during those days when a majority of all Americans were apparently looking at the same events and hearing the same words from their television sets" (p. 4).

With the advent of the personal computer, video cassette recorder, and cable television, viewers have a mind-boggling array of entertainment and news choices, and a barrage of other information thrown at them every day. In response, the traditional media no longer report the news, they create it, as a wise man, Everett Jones, used to say. As the broadcast and print media vied for their share of the pie, tabloids such as *National Enquirer* and *Star* began their reign as attention-getters at the check-out stands while programs such as "A Current Affair," "Extra," and "Hard Copy" sprang up as television's version of tabloid journalism.

Even network news and newspaper reporters got into the act, digging deeper and deeper into the negative recesses of any given story. If it was an insignificant issue, the media could make it a significant one, and if it was a headline-grabber in the beginning, the media would blow it off the proportional charts.

In an interview with *San Francisco Chronicle* Staff Writer Edward Epstein, Walter Cronkite shared his concerns of the press becoming more sensational.

I have been very much disturbed over the lack of competition in the newspaper business with so many competing newspapers going out of business across the country and monopoly journalism dominating in most of the cities of the United States. So, in a way, I am pleased to see that in television, there's even more competition today than there was.

There was plenty when there were just three network evening news broadcasts. Certainly, we were highly competitive. And that may have been enough. But in one sense, the more news is exposed, perhaps the more it will be absorbed by the population. It's hard to say that this proliferation of news channels is bad. I can't believe it's bad. If--and that's a big if--those who indulge in it do it properly. That's the main question. If they turn into more of the sensational, the tabloid, and attempt to garner viewership, then we haven't gained anything but perhaps have lost something.

It's most unfortunate that the tabloid press and the sensational press has had a great resurgence in recent years and now is being duplicated on television in many ways. . . . it certainly is true that the bad drives out the good. We see that the legitimate papers are having a problem with circulation and certainly the legitimate evening news broadcasts and the networks are having their problems. . . . in both broadcast and print, we see publishers and broadcast executives believing that their news columns should yield to that sort of pressure and try to, in some ways, compete with it. We don't go all the way. But there is a tendency to featurize the news today that I think is slipping away from the factual presentation that I believe is our duty and responsibility (Epstein, 1996, p. 3).

It seems that the media are caught up in a game of topping the last big story. Reporters want to know what is unique about the story, in other words, what is the *hook*, rather than running a story for the simple reader reaction of, *How nice* or *That's great!*

In this war of media one-up-man-ship, it seems that the public has lost its sense of commonality and the media have lost their knack for fair reporting. Back in the days of the space program, the media worked toward the common good for all, refusing to air or print a story simply for the shock value. They didn't focus on the extramarital affairs of political officials and didn't chase after the would-be ambulances waiting for astronauts to crash out of the sky.

This study was approached from the standpoint that is taken by today's media. That is, a story is not worth airing or printing if there is no negative aspect; no blood and guts, no deception, no failure, no tragedy. The results show that today's media are different from the media 25 to 30 years ago.

Perhaps the scars of Watergate left the media and the American people skeptical. Maybe there will always be questions and doubt about the *full story* but it is important to bring about awareness of a growing problem within the media. The findings of this study are significant because it is not enough to say that today's media over-sensationalize issues. It is necessary to use such data to prove that media reporting used to be different and make an attempt to bring about changes. While it is true that life is different now than it was 30 years ago, it is important to remember our history as it was, not as the media would have us believe.

Limitations of the Study and Suggestions for Future Research

This study examined only periods when crisis situations were evident. Therefore, results may have been skewed. If the study had compared media coverage of the space program during the time frame examined and during present-day conditions, presumably there would be an even greater contrast to indicate a non-sensational media of the past versus a current sensational media. Indeed, with a larger sample size and media analysis during the entire period of the space program rather than testing a random sample of missions, the results may be more conclusive in that direction. In addition, the frames could be expanded to take a broader view into account. For example, instead of merely looking at the major frames over a 25-year period, the major frames throughout the space

program should be examined. This longer study period would result in other frames being added as well. The changes and differences in those frames would also be more pronounced in a more extensive study.

This study is a beginning toward future research on the subject. It is suggested that future studies use this preliminary data and continue with additional frame analysis of all missions, not only those of a crisis nature, as well as those during the years of 1987 to 1997. In the process of comparing the data, the research may indicate a sharp contrast between the media between the years of 1962 and 1986, and the years of 1987 and 1997 to indicate the media's growing propensity toward sensationalism. Perhaps this frame analysis could be complemented by interviews with journalists as to how they actually view the U.S. space program.

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