REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188

1. AGENCY USE ONLY *(Leave blank)*	2. REPORT DATE 23.Feb.00	3. REPORT TYPE AND DATES COVERED MAJOR REPORT

4. TITLE AND SUBTITLE
1) THE USE OF UNITED STATES MILITARY FORCE IN THE POST COLD WAR ERA 2) NASA: INTERNATIONAL TRAINING AND INTEGRATION OFFICE IMPROVING INTERACTION AND COOPERATION WITH THE

5. FUNDING NUMBERS

6. AUTHOR(S)
2D LT REED KIM N

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
UNIVERSITY OF READING

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
THE DEPARTMENT OF THE AIR FORCE
AFIT/CIA, BLDG 125
2950 P STREET
WPAFB OH 45433

10. SPONSORING/MONITORING AGENCY REPORT NUMBER
FY00-95

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION AVAILABILITY STATEMENT
Unlimited distribution
In Accordance With AFI 35-205/AFIT Sup 1

12b. DISTRIBUTION CODE

13. ABSTRACT *(Maximum 200 words)*

20000307 038

DISTRIBUTION STATEMENT A
Approved for Public Release
Distribution Unlimited

14. SUBJECT TERMS

15. NUMBER OF PAGES
143

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT

UNCLASSIFIED

AD-A 374 198

NASA: International Training and Integration Office Improving Interaction and Cooperation with the International Partners.

AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH

23 FEB 2000

Distribution Statement A:
Approved for public release. Distribution is unlimited.

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SYNOPSIS

Cultural differences can have a significant impact on the outcome of international cooperative activities. The International Space Station is the largest and most complex international cooperative effort of its time. The management of the International Space Station will set the example for future cooperative activities in the international environment. As the world moves toward globalization, it will become increasingly important for businesses to know how to work together on an international level. International cooperation will become essential if individual nations are to achieve significant milestones in the business world.

This report focuses on the cultural differences of the three largest single contributing nations of the International Space Station, the United States, Russia, and Japan. This report uses ten cultural dimensions from the work of Gary Ferraro and Fons Trompenaars to analyze the cultural values of the international partners. Information about cultural differences was obtained through interviews with NASA employees about their perceptions of Russian and Japanese cultures. Based on these interviews and the analysis of cultural differences, this report provides recommendations to help improve the interaction and cooperation between the international partners. Although this project was conducted from a space environment perspective, its lessons are still relevant to the wider business environment.

ACKNOWLEDGEMENTS

TERMINOLOGY

GCTC   Gagarin Cosmonaut Training Center
ISS   International Space Station
ITIO   International Training and Integration Office
JSC   Johnson Space Center
MOD   Mission Operations Directorate
NASA   National Aeronautics and Space Administration
NASDA   National Space Development Agency of Japan
RSA   Russian Space Agency
RSC   Rocket Science Corporation

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INTRODUCTION

As the trend towards globalization continues, international cooperation in space has become increasingly prevalent. Globalization has presented a new age of growth and shared prosperity through a more efficient allocation of resources making international cooperation more important now than ever before. As the capabilities of space-faring nations converge, the number of space capable nations increases, and space science projects become larger and more complex, international cooperation in space will be essential to the future of space exploration. According to Peter Smith with the National Aeronautics and Space Administration (NASA) International Relations Division, "More than 1,200 agreements with over 130 countries and international organizations have been negotiated by NASA in the past 30 years. The benefits of such cooperation have been monetary (more than $12 billion contributed or pledged), strategic (access to foreign expertise and facilities) and, of course, political. The downsides, however, include management complexity, technical and programmatic risk and, of course, political risks" (Smith, 1999, page 1). International cooperation in space has significant advantages, but it can also present new problems and potential conflicts, many of which arise from cultural differences. NASA must be aware of these issues and have a means to limit or prevent these problems and conflicts from occurring so that it can be more successful in achieving its goals and objectives.

This project will address the issue of how NASA can improve interaction and cooperation with Russia and Japan as they work to achieve the International Space Station (ISS). The United States, Russia, and Japan are three of the major ISS

contributors with some of the most contrasting cultural values. This project will evaluate the current problems in working with the international partners and assess the problems in the context of national cultural differences. The analysis of national cultures will include specific experiences of NASA personnel who are involved with the International Space Station. This report will then relate these cross-cultural experiences to current literature on national cultural differences to establish the cultural value dimensions for each country. This report will also provide specific training recommendations based on a model of key variables of cultural differences as they relate to the behavior in international space cooperation. These recommendations will help NASA to improve its relations and interactions with the international partners.

One aspect of improving relations with the international partners is to improve the negotiation process involved with the International Space Station (ISS). Contrasting cultural values have had a significant impact on these negotiations. If the people involved in the negotiations do not understand the cultural differences and how to work with the differences, then it is more difficult to come to an agreement. Therefore, this report will look into how contrasting cultural values can have an effect on the negotiation process, and how negotiations can be improved based on the analysis of cultural values. The result of a successful negotiation is an agreement between the international partners to proceed with some aspect of the ISS.

This project is important as conflict between international partners can cause delays in missions and can also ultimately limit the success of NASA. This project directly affects NASA's ability to negotiate with the international partners regarding design, development, scheduling and implementation of training in all countries. By

completing this project, this report will provide NASA's International Training and Integration Office (ITIO) with specific information regarding national cultures and how cultural differences can affect negotiations with the international partners. This analysis will assist NASA in improving relations and also in making negotiations with the international partners more efficient.

This report begins with an explanation of the context of this project in terms of NASA history and the complex NASA organizational structure. Chapter one will also analyze the importance of international cooperation in space from a globalization perspective and explain the current interaction on the International Space Station. Chapter two includes the literature review, which will discuss the main literature associated with this project. It will also identify the discontinuity in the current literature and explain how this project will relate theory to practice. Chapter three discusses the methodology used for the project. This chapter will explain the use and structure of interviews to address the main issues and problems associated with international cooperation in space. Chapter four will assess the interaction between the international partners as they work on the ISS. This chapter will evaluate the results of the interviews regarding contrasting cultural values of the United States, Japan, and Russia. Chapter five will look at the interaction of the international partners in the negotiation process and assess the effect of contrasting cultural values during negotiations. Finally, chapter six presents recommendations to improve interaction and cooperation between the international partners. The recommendations will be based on the analysis of national cultures and cooperation in space. These recommendations will help NASA to improve its cooperation and interaction with the international partners.

CHAPTER I:

CONTEXT

History

In 1915, the United States Congress created the National Advisory Committee for Aeronautics to "supervise and direct scientific study of the problems of flight" (NASA Headquarters, 1999, page 1). This agency evolved into the National Aeronautics and Space Administration four decades later in 1958 when Congress formed a civilian agency to lead the "expansion of human knowledge of phenomena in the atmosphere and space" (NASA Headquarters, 1999, page 1). Today, NASA employs 18,500 civil servants and generates thousands of high technology jobs for the private sector. In addition, the United States aerospace industry generates over $40 billion in annual exports and almost $30 billion in positive balance of trade each year (NASA Headquarters, 1999, page 1). NASA's budget for Fiscal Year 1999 was $13.6 billion, which is less than one percent of the total Federal Budget. Even with the smallest budget of the major agencies in the Federal Government, NASA has consistently provided benefits for the United States by providing jobs as well as demand for goods and services. Virtually every aircraft in use today employs some technology pioneered by NASA. NASA's mission is to (NASA Headquarters, 1999, page 2):

- Explore, use, and enable the development of space for human enterprise;

- Advance scientific knowledge and understanding of Earth, the solar system, and the universe and use the environment of space for research;

- Research, develop, verify, and transfer advanced aeronautics, space and related technologies.

The framework for accomplishing these missions is embodied in NASA's organizational structure.

Organizational Structure

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                              NASA
                           Headquarters
        ┌──────────────┬────────────────┼──────────────────┐
   Earth Science    Aeronautics   Human Exploration &   Space Science
   Enterprise       Enterprise    Development of Space   Enterprise
                                  Enterprise
        ┌──────────────┬────────────────┬──────────────────┐
   Kennedy         Johnson Space    Marshall Space      Stennis
   Space Center    Center           Flight Center       Space Center
        ┌──────────────┬────────────────┬──────────────────┐
   Flight Crew     Engineering      Mission            Information
   Operations      Directorate      Operations         Systems
   Directorate                      Directorate        Directorate
   ┌─────────┬──────────┬───────────┬──────────────┬────────────┐
   Systems   Flight Design  Space Flight   EVA, Robotics &   Operations
   Division  & Dynamics     Training       Crew Systems      Division
             Division       Division       Division
                        International Training
                        & Integration Office
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Figure One: NASA's Organizational Structure (simplified)

NASA is a large organization with many different areas of responsibility. NASA consists of four strategic enterprises, which include Earth Science, Space Science, Human Exploration & Development of Space, and Aeronautics & Space Transportation Technology. Each space research center falls under one of these enterprises.

This project will take place at Johnson Space Center (JSC) in Houston, Texas, which is part of the Human Exploration & Development of Space Enterprise. The JSC was established in 1961 as the center primarily responsible for activities related to human space flight. Today, JSC manages the Space Shuttle and International Space Station and employs 2,940 civil servants. The mission of JSC is "the expansion of a human presence in space through exploration and utilization for the benefit of all" (JSC Annual Report, 1999, page 1).

The JSC is organized into several directorates. This project is part of the Mission Operations Directorate (MOD). The MOD plans, directs, manages and implements overall mission operations including the Space Shuttle and Space Station Programs. The MOD consists of five primary divisions including the Space Flight Training Division. The Space Flight Training Division is responsible for defining, implementing, and tracking training programs for flight crews and flight controllers for Space Station missions. The Division develops long-range training plans and defines future training concepts and requirements for the International Space Station. It is also responsible for integrating these requirements with other organizations within NASA and the international partners (MOD, 1999, page 3).

The agency within the Space Flight Training Division that is specifically responsible for interaction with the international partners is the International Training and

Integration Office (ITIO). The ITIO is responsible for the facility interfaces with the space agencies from Russia, Japan, Europe, and Canada. The ITIO coordinates training, establishes dual language training documents, and interfaces with the crew members on their training in Russia and the United States. The ITIO has multiple panels with the international partners to ensure that all partners are fulfilling their assigned tasks and responsibilities. In addition to these responsibilities, the ITIO is responsible for tracking agreements and negotiations between the international partners relating to the International Space Station.

The ITIO commissioned this project to help improve cross-cultural negotiations for agreements related to the International Space Station. By conducting interviews with NASA personnel and observing negotiations, I will provide them with information regarding cultural differences that can help to improve the negotiation process. All parties involved must understand the differences in national cultures if the negotiation process is to be effective and efficient. The personnel involved in the ISS were the primary source of information for this report as several negotiations have already taken place between the United States, Japan, and Russia regarding the ISS. The personnel interviewed range from astronauts to training staff to contractors who integrate the ISS systems. Their experiences and recommendations regarding the ISS negotiation process will assist in meeting the ITIO objectives for this project.

It is important to understand that negotiations with the international partners not only affect the ITIO, but can also have a significant impact on the entire NASA organization. A failed negotiation or an overdue agreement can cause delays in missions and result in significant setbacks in the exploration of space. This report will help the

ITIO to improve its cooperation and interaction with the international partners so that NASA and the international partners can successfully achieve the goals of the ISS. International cooperation will become more important in the future, and NASA must be prepared to meet the challenges associated with international cooperation.

The Need for International Cooperation

International cooperation has been a fundamental part of NASA since the agency was formed. The 1958 Space Act that established NASA enjoined the agency to "contribute materially to . . . [c]ooperation by the United States with other nations and groups of nations" (Pederson, 1992, page 205). In addition, the most recent version of the National Space Policy reaffirms United States support for mutually beneficial cooperative undertakings. In practice, there are few NASA space programs, manned or unmanned, that are conducted today without some form of international involvement. This cooperation ranges from shared scientific data and joint research to construction of space hardware and joint missions.

International cooperation plays a more important role in most organizations today as a result of the increasing trend towards globalization. Globalization will increase the need to understand national cultural differences as employees become more diversified. Even as the world globalizes, we will still have our own national cultures created from our own national experiences. It is unlikely that globalization will bring about a homogenous society where there are few cultural differences. However, there is a greater possibility that as the world globalizes, there will eventually be a greater understanding of these differences. The space business is under pressure to globalize if it is to be

successful. This pressure stems from political, economic, social, and technological factors within the environment. These factors have all had a significant impact on the growing necessity for international cooperation in space.

- **Political Factors:**

From the outset, international cooperation in space has been motivated primarily by foreign policy imperatives. The major political factor that had a positive influence on cooperation was the fall of the Soviet Union. The détente between the United States and Russia makes it more politically feasible to consider large-scale cooperation across the former East-West divide. In addition, politically motivated goals can also act as a mechanism to assist in establishing international space activities. This political motivation was especially apparent after the Cold War. According to Professor Mikhail Ya. Marov from the Russian Academy of Sciences, once the Cold War came to an end, the work of scientists and engineers in space programs no longer appeared prestigious in the new Russian society due to criticism by legislators and journalists regarding large expenditures in space programs (Marov, 1992, page 272). As a result of the criticism, many of these scientists were inclined to work outside of Russia where they could maintain their level of prestige and income. Therefore, a major political objective after the Cold War was to keep Russian scientists and engineers involved in constructive activities and to prevent the transfer of missile and nuclear technology to other countries. The result was a focus on international cooperation including American participation in the Mir program and Russian cosmonauts on Space Shuttle missions. NASA and Russia may not have been able to accomplish these cooperative space activities without the political push involved.

- **Economic Factors:**

  Economic factors have also brought international cooperation in space to a top priority. According to the director of the European Space Agency, most space-faring nations are facing severe domestic spending constraints, which reduce the freedom to conduct a wide range of science and technology programs (Madders and van Reeth, 1992, page 221). In addition, space programs require large amounts of resources, and it is difficult to calculate the economic return. Thus, space programs have been likely targets for budget reductions. The United States, Russia, and Japan are all facing these economic difficulties. NASA is struggling with a few extremely large programs that are taking a great portion of the NASA budget. In addition, the United States Congress recently proposed an 11% reduction in NASA's budget. Although Russia has valuable experience and hardware, its space agency is being starved of funding and is in poor shape due to the disorganization resulting from the break-up of the Soviet Union. For Russia, working with international partners may be essential to the survival of their civilian space program. Finally, the Japanese Government is only willing to provide modest levels of spending, and thus, its space agency (NASDA) is subject to a conservative budget. For Japan, cooperation offers hope of fulfilling ambitious space programs. For all international partners, international cooperation in space allows space faring nations to lower individual costs without sacrificing mission accomplishment.

- **Social Factors:**

  Social factors also play a role in the trend towards international cooperation. In the United States particularly, citizens are looking to devote resources to rebuilding social and educational infrastructure. Since the Cold War came to an end, Americans have been

much less inclined to provide support and resources to a large space program. According to the Space Policy Institute and Association of Space Explorers the space program is now being judged by its own merits, not as a surrogate measure of national technological and organizational vitality (Space Policy Institute, 1992, page 197). The NASA Task Force on International Relations in Space further states that international participation in a project lends stability and a higher degree of assurance of continuity than is available to solely national projects (NASA Advisory Council, 1987, page 18). This stability leads to greater approval from the public and government officials, making complex space projects more socially acceptable.

- **Technology Factors:**

    Technology has also influenced the advancement of cooperation in space. Access to technology and systems can advance important objectives. By foregoing or deferring the development of similar technologies, countries can avoid wasteful duplication of effort, expedite mission schedules, and allocate limited resources more efficiently (Pederson, 1992, page 209). In addition, international cooperation can provide for open sharing of scientific results, greatly enhancing the benefits for all international partners.

    According to the Committee on International Space Programs of the Space Studies Board, the following are benefits of international cooperation in space (European Science Foundation, 1998, page 11):

- Improved scientific results from the sharing of experience, resources, data, and knowledge;

- Enhanced and diversified opportunities for space research;

- Reduction of costs for each participant through cost sharing;

- Enhanced chances of obtaining program or project approval and seeing it through to successful conclusion;

- Stimulation of technology development;

- Access to new technologies;

- Improved international relations.

As globalization continues, international cooperation in space will become increasingly important. Political, economic, social, and technological factors will also contribute to the necessity of cooperation in space, as projects become larger and more complex.

International Cooperation and the International Space Station

According to the NASA Task Force on International Relations in Space, the definition of cooperation is "common parties working or acting together for mutual benefit on agreed topics" (NASA Advisory Council, 1987, page 17). Cooperation can range from the exchange of published material to conducting complex and costly activities in a single, commonly funded international facility. In the business world, cooperation is essential to national and international commerce, especially in a world characterized by interdependence and globalization. Cooperation can take the form of licensing, making agreements on industrial shares, selling and buying merchandise, building factories overseas to have access to markets, as well as a number of similar activities. All of these forms of cooperation have one thing in common in that each side seeks something it values. Cooperation is intended to create win-win situations although that may not always be the result (NASA Advisory Council, 1987, page 17-18).

International cooperation in space follows a similar pattern. Cooperative activities range from small-scale activities, such as the exchange of scientific and technological publications, to larger, more complex activities, such as the completion of the International Space Station. Cooperative programs allow each country to contribute its individual expertise. International cooperation can also foster an increased understanding of different cultures with the potential to lead to more peaceful and productive relations between the people of the involved countries (NASA Headquarters, 1999, page 4).

The ISS is the largest international scientific and technological program in history. The completed ISS will be a permanent orbiting laboratory in space, capable of performing long-duration research in the unique environment of the Earth's orbit. The assembly of the ISS began in December 1998 and should be completed by 2004. The ISS involves fifteen nations, including the United States, Canada, Italy, Belgium, the Netherlands, Denmark, Norway, France, Spain, Germany, Sweden, Switzerland, Japan, Brazil, and Russia. According to the Manager of the Russian Integration section, the critical factors in meeting the challenges presented by the ISS are the dedication of the individuals involved from all of the participating nations as well as the strength of the relationships they have formed with each other (Jacobs, 1999, page 1). This chapter will focus specifically on the interaction and relationships between the United States, Japan, and Russia, as they are the largest single contributing nations with some of the most contrasting cultural values.

The United States is the initiator, integrator, and leader of the ISS program. The United States segment will provide nearly half of the pressurized volume of the station and will provide integrated service, including electrical power, communications, health

maintenance, and life support for all of the international partners. Japan was an original partner of the ISS and its contribution to the ISS has remained stable and unchanged. NASDA will provide an experiment module, which is currently on schedule and on time.

Russia's status differs slightly from the United States and Japan, as it only became an official ISS partner on December 6, 1993 when the United States recommended Russia as an additional partner. Russia's contribution, the Mir 2 space station, greatly enlarged the ISS from its original size. In addition to the Mir 2 module, Russia will also make several other contributions, making up nearly a third of the mass of the completed ISS (Jacobs, 1999, page 5). To gain approval from the Russian Government for ISS funding, NASA has to help keep the current Mir 1 space station functioning. As the Russian Space Agency (RSA) explained, "it would be difficult to explain to the Russian government and the Duma why a Russian national resource [Mir 1 space station] would be 'abandoned' to join an international, U.S.-led effort" (Jacobs, 1999, page 6). The RSA claimed that if the exchange could not be made, then some Russian contributions to the ISS would perhaps not be available, as they were under-funded. Despite the problems with funding, the addition of Russia to the ISS partnership has enabled: (Jacobs, 1999, page 8)

- Larger volumes onboard the ISS

- Larger crews

- Earlier permanent habitation

- Greater science capability earlier than planned

- Use of proven technologies to decrease development and testing costs

But most significantly from a cultural perspective, the addition of Russia to the ISS has allowed engineers and planners to learn to overcome cultural differences and work together in the operation of a long-term spacecraft.

The ISS program continues to face significant challenges including budgetary constraints, scheduling, as well as cultural and national differences. However, despite the challenges, the ISS is setting the example for future international cooperative efforts throughout the business world. According to the Manager of the Russian Integration section, Daniel Jacobs: "The International Space Station Program is currently creating the mechanisms and processes that will be used by future civil cooperative activities in all fields. Because of the limited resources available to individual nations today and the expanded expertise possessed by larger numbers of countries, future activities will by necessity be conducted on cooperative bases. When the International Space Station is successful, it will serve as a catalyst and pathfinder for those international cooperative scientific ventures in all fields" (Jacobs, 1999, page 8).

Some of the cultural differences between the United States, Japan, and Russia have caused conflicts, problems, and even delays while working on the ISS. These problems are often a result of mismatched expectations based on a country's values. This report will focus on these cultural differences and provide recommendations as to how to overcome the differences to allow for improved cross-cultural interaction.

CHAPTER II:

LITERATURE REVEW

The literature for this report involves both theory and experience based literature. There has been a substantial amount of literature produced on the theories of national cultural differences and also on examples of international cooperation in space, but the literature does not establish a link between the two. This report focuses on management literature about national cultures, specifically the literature produced by Edgar Schein, Geert Hofstede, Fons Trompenaars, Nancy Adler, Edward Hall, and Gary Ferraro. This report will also use material sponsored by NASA regarding previous experience and recommendations for international cooperation. Primary sources for NASA information included NASA Internet sites, the NASA Headquarters library, and the NTIS CD-ROM.

National Culture Differences

There is a substantial amount of literature regarding the differences in national cultures and how the differences relate to cross-cultural cooperation. There have also been quite a few reports written about international cooperation in space. However, there is no link between cross-cultural theory and international cooperation in space. Therefore, this report seeks to provide the missing link between theory and practice in cross-cultural interaction in space activities. It is first necessary to address the main theorists who have conducted research on the differences in national cultures.

Edgar Schein provides the most widely accepted definition of culture in his book Organizational Culture and Leadership. Schein defines culture as "a pattern of shared

basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think and feel in relation to those problems" (Schein, 1997, page 2). Schein also presents a model of culture that conceptualizes culture as a 'layered' phenomenon with three interrelated levels:
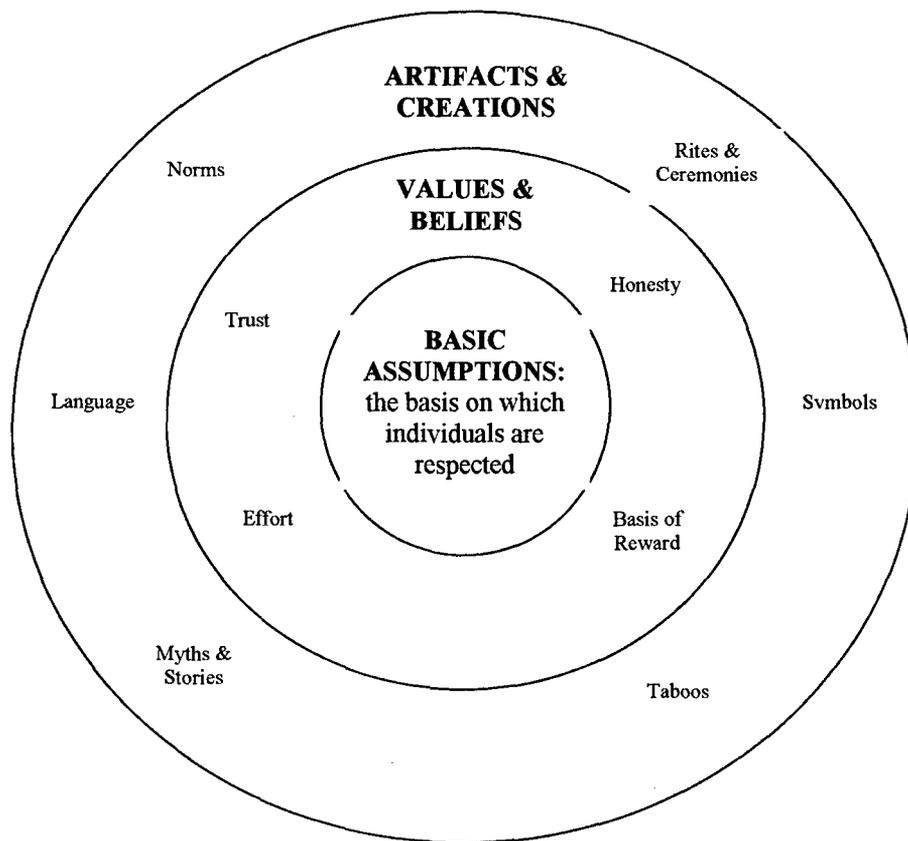
Figure Two: Schein's Layered Conceptualization of Culture

Schein's model shows how basic assumptions lie at the innermost of one's culture and that people subscribe to these basic assumptions in an unconscious way. Values and beliefs exist at the next level and consist of reasons and justifications for people's

behavior. These values are consciously held and stem from the basic assumptions. The outer layer is known as artifacts and creations, which are the most visible manifestations of a culture. This layer includes features that are most familiar when discussing national cultural differences, such as the way people talk or dress. Some of these features can provide clues about underlying values and beliefs. Edgar Schein transforms the abstract concept of culture into a practical tool that managers can use to understand cultural dynamics.

Geert Hofstede is one of the most well known authors in the subject of national cultures. In his book, <u>Cultures and Organizations: Software of the Mind</u>, he describes culture as the "software of the mind" such that each person carries patterns of thinking, feeling, and potential acting, which are learned throughout their lifetime. Hofstede is also famous for his dimensions of national cultures. These dimensions help to identify problems that are common to all societies, which include the following dimensions of national culture:

- Individualist versus collectivist: the extent to which the interests of the individual prevail over the interests of the group

- Masculinity versus femininity: the extent to which the dominant values in a society tend toward assertiveness and the acquisition of things, and away from concern for people and the quality of life (the dimension was labeled as "masculinity" because in nearly all of the countries where people were interviewed, men were most likely to score higher on these values than women)

- Uncertainty avoidance: the extent to which the members of a culture feel threatened by uncertain or unknown situations

- Power distance: the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally among individuals

- Confucian dynamism: the extent to which a culture has a long-term versus a short-term orientation in life

The classification of cultures along these dimensions comes from research of IBM in fifty-three different countries. Hofstede's dimensions are useful in discussing cultural problems in many different countries, but there are many other significant issues that his dimensions do not cover. Hofstede's dimensions are best used in conjunction with dimensions and tools presented by other theorists.

Since Hofstede's research only comes from one organization, there is some controversy about his arguments and whether or not one organization provides sufficient evidence to classify the various cultures. Both Hunt (1981) and Tyson and Jackson (1992) criticize Hofstede's work for his methodology of conducting the research from a single company. They claim that single company research limits the extent to which the results can be used for other companies within the same country (Rollinson, 1998, page 562). Another critique of Hofstede's work in relation to this project is that he does not include Russia in his research, as IBM was not located in Russia at the time of the study. This is a drawback in using his conclusions, as it does not provide data regarding the Russian culture and how it compares to the United States and Japan.

Other theorists have also presented sharp criticism of Hofstede's work on cultural dimensions. One criticism is that he suggests an extremely limited role for individuals in developing their culture. He views individuals as passive and it would appear from his

research that individuals are simply the recipients of culture. Hofstede argues that culture is not a property of the individuals, but of groups.

Another criticism is that his views appear to ignore diversity within national cultures. He claims that country boundaries are usually cultural boundaries, and national culture is instilled from birth. However, this can be viewed as a serious discontinuity in today's world. There may be many different cultures within one country and that issue should be addressed by Hofstede to provide greater support for his research. Despite the controversy, his work is widely used and has become the basis for further research. Other researchers, such as Laurent (1983), Ronen & Shenkar (1985), and Grey & Throne (1990) have all produced results that are broadly supportive of Hofstede's results on national cultural differences (Rollinson, 1998, page 562).

Fons Trompenaars also expands on the work of Geert Hofstede in his book <u>Riding the Waves of Culture: Understanding Cultural Diversity in Business</u>. He provides his own definition of culture as "shared ways groups of people understand and interpret the world" (Trompenaars, 1993, page 3). Trompenaars book aims to dispel the notion that there is one best way of managing and organizing, and also gives readers a better understanding of their own culture as it compares to other cultures. Trompenaars presents seven dimensions of national cultures that include:

- Individualism versus collectivism: Do people regard themselves primarily as individuals or as part of a group?

- Universalism versus particularism: Can what is good and right always be defined and applied to every situation?

- Neutral or emotional: Should the nature of our interactions be objective and detached, or is expressing emotion acceptable?

- Specific versus diffuse: Does the relationship involve a specific relationship prescribed by a contract or a real and personal relationship?

- Achievement versus ascription: Is judgment based on recent accomplishments or is it based on status attributed by birth or kinship?

- Sequential versus synchronous: Is time perceived as passing in a straight line or as moving in a circle?

- Internal versus external: Does the major focus affecting lives reside within the person or is the world more powerful than the individual?

Trompenaars asked people from different countries general behavior questions about different situations to research cultural differences within a society. As Trompenaars concludes, people from different cultures will respond to these questions differently. The responses helped to classify each culture within a specific dimension.

One of the major benefits of Trompenaars research as compared to Hofstede's research is that it includes discussions of culture for the United States, Japan, and Russia. This information is beneficial for this report. Also, Trompenaars work is based on a wider range of organizations. Trompenaars research focuses on thirty companies in fifty different countries. Some of the companies involved include AKZO, AT&T, BSN, Eastman Kodak, Elf Aquitaine, Glaxo, Heineken, ICI, Lotus, Mars, Motorola, Philips, Royal Dutch Airlines KLM, the Royal Dutch/Shell Group, TRW, Van Leer, Volvo and Wellcome (Trompenaars, 1991, page 1). A minimum of 100 people with similar backgrounds and occupations were taken from each of the countries in which the

companies operated. The wide range of companies and greater range of countries provides additional information to the single organization view of Hofstede.

Trompenaars dimensions are extremely useful. His dimensions include some of the most significant variables of cross-cultural values. However, for the most complete coverage of value dimensions, Trompenaars work should be combined with Ferraro's dimensions, which will be discussed later in this literature review. One major criticism from other theorists of Trompenaars work is that it includes many data points from certain cultures but far fewer data points from other cultures. This lack of continuity makes statistically valid results more difficult to achieve. However, the material is still useful for research on national cultural differences.

Edward Hall presents three important concepts about cultural differences in his book Beyond Culture (1976). His work is further updated and expanded in his other books, such as Understanding Cultural Differences (1990). Hall's three concepts include time, context, and space. According to Hall, "[t]ime is one of the fundamental bases on which all cultures rest and around which all activities revolve" (Hall, 1990, page 179). Context refers to the amount of information that a person can comfortably manage. Space is the invisible boundary around an individual that is considered personal. Each culture has it's own sense of time, context, and space. When interacting with different cultures, people may feel uncomfortable due to the cultural differences. These three concepts surface in many other authors' research. This report will focus specifically on the time and context concepts as they relate to the dimensions included from Trompenaars and Ferraro. Hall uses concrete examples in his books to display the unconscious culture and how it can affect interaction between people of different cultures. One critique of Hall's

work in relation to this project is that his examples are often not relevant to the business world. However, his discussions are still useful in providing examples of cultures as they relate to time, context, and space.

Nancy Adler presents another view of national culture differences in her book, International Dimensions of Organizational Behavior. Adler discusses the behavior of managers, employees, and organizations from a global perspective. Adler's research differs from Hofstede and Trompenaars in that she provides more detail relating to the effects of national culture differences on various aspects of the working environment. She explains how to make the most of these situations and establishes recommendations for improvement.

Adler starts her book with her own view of four dimensions to help classify different cultures. Adler's work on dimensions differs from that of Hofstede and Trompenaars as she does not rank each country as to where they fit along these dimensions. She only uses these dimensions as a basic discussion as to some of the primary differences between cultures. These dimensions of national culture differences include:

- Personal relationships: individualism or collectivism; value individual welfare or value welfare of the group

- Activity: doing or being; achieve most in life or experience life

- Time: past, present, or future; evaluation based on custom and tradition or evaluation based on projected future benefits

- Space: public or private; the arrangement of organizational space

In discussing these dimensions, Adler uses the United States and Japan as examples, but does not provide information as to how Russia fits into these cultural dimensions.

Adler's dimensions are an extremely limited view of cultural values. She devotes very little time to the discussion of these dimensions and perhaps her book would have been better if she had simply referred to Trompenaars dimensions, which are similar, but provide greater coverage and explanation. Her discussion on dimensions contributes very little to the overall research on cultural dimensions.

Adler's main contribution to this report is a chapter on different cultures' negotiation styles, including the United States, Russia, and Japan. She explains the effect of differing cultural values on the negotiation process. Adler presents the view of American and Russian styles of persuasion as created by Glenn at al. in the article, 'Cultural Styles of Persuasion' from the *International Journal of Intercultural Relations* (Adler, 1997, page 190):

	American	Russian
Primary Negotiating Style and Process	Factual: appeals to logic	Axiomatic: appeals made to ideals
Conflict: Counterparts' Arguments Countered With	Objective facts	Asserted ideals
Making Concessions	Small concessions made early to establish a relationship	Few, if any, concessions made
Response to Counterparts' Concessions	Usually reciprocate counterparts' concessions	Counterparts' concessions viewed as weakness and almost never reciprocated
Relationship	Short term	No continuing relationship
Authority	Broad	Limited
Initial Position	Moderate	Extreme
Deadline	Very important	Ignored

Table One: National Styles of Persuasion – United States and Russia

According to this table, Americans typically use a factual approach to negotiating and appeal to logic. Americans will also make concessions early if they see it necessary to build a stronger relationship. However, Americans still view this relationship as short term and only necessary for the negotiation process. Americans are also highly concerned with deadlines in negotiations.

This table also describes the Russian approach to negotiations. The Russians appeal to ideals and usually start with an extreme position. They will rarely make concessions and may also see any concessions by Americans as a sign of weakness. Russians also tend to ignore deadlines in their negotiations. In addition, Russians have a limited amount of authority as compared to Americans. Another issue in relation to negotiations is that Russians will rarely develop a continuing relationship with the Americans that they negotiate with.

Adler also presents the view of Pierre Casse regarding the different negotiating styles of the Japanese compared to the Americans (Adler, 1997, page 192):

American	Japanese
Emotional sensitivity not highly valued	Emotional sensitivity highly valued
Dealing straightforwardly or impersonally	Hiding emotions
Litigation; not as much conciliation	Subtle power plays; conciliation
Lack of commitment to employer; breaking ties by either if necessary	Loyalty to employer, employer takes care of employees
Team provides input to a decision maker	Group decision making by consensus
Decisions based on cost-benefit analysis; face-saving not generally important	Face-saving crucial; decisions often made to save someone from embarrassment
Decision makers influenced by special interests, but often not considered ethical	Decision makers openly influenced by special interests
Argumentative when right or wrong, but impersonal	Not argumentative; quiet when right
Great importance given to documentation as evidence of proof	What is down in writing must be accurate, valid
Methodically organized decision making	Step-by-step approach to decision making
Profit motive or good of individual ultimate aim	Good of group is the ultimate aim
Decision making impersonal; avoid involvement, conflict of interest	Cultivate a good emotional social setting for decision making; get to know decision makers

Table Two: National Styles of Negotiation – United States and Japan

According to this table, Americans act quite differently from the Japanese in the negotiation process. They deal straightforwardly and can be argumentative when they feel they are right. Decisions are usually based on a cost-benefit analysis and are made by one decision-maker that has received input from the team. Americans also tend to avoid personal involvement as it has the potential to create a conflict of interest. This information is consistent with the literature previously discussed regarding American cultural values.

The table also explains the key differences between the Americans and Japanese during the negotiation process. The Japanese are much more group oriented and will make decisions based on group consensus. The Japanese will follow a step-by-step approach when making decisions and will only make a decision to benefit the good of the group. Also, it is unlikely that the Japanese will become argumentative even if they feel they are right. These differences may cause difficulties when conducting negotiations between the Americans and Japanese.

Adler also suggests a four-stage process, which could help to improve negotiations between organizations of different national cultures. This area is an advantage of Adler's research, as it is not extensively covered in any of the other literature. This four-stage process will be evaluated as a recommendation to help NASA improve its negotiations with the international partners.

Gary Ferraro, author of The Cultural Dimension of International Business, combines the work of Hofstede, Trompenaars, Hall, and Adler to demonstrate how the theory and insights of cultural differences can positively influence the conduct of international business. As Ferraro points out, cultural conditioning is a part of an

individual's consciousness or "software of the mind" as Hofstede states. Therefore, individuals can frequently fail to understand that people from other cultures may not share one's own culture. If this misunderstanding occurs, then cross-cultural cues can be missed, communication can be short-circuited, and hostilities can be generated (Ferraro, 1998, page 88). Thus, it is necessary for anyone involved in international business to understand the cultural differences.

To help prepare the American businessperson for cross-cultural cooperation and interaction, Ferraro provides a handbook to explain how American culture is different from other cultures. These differences range from language to values. In discussing the cultural values of Americans, Ferraro uses nine different dimensions to establish the main differences between Americans and other cultures. Ferraro's work on value dimensions is primarily modeled after the "value orientations" suggested by Florence Kluckhohn and her associates at Harvard (Kluckhohn and Strodtbeck, 1961) and applied to a cross-cultural context by Hofstede (1980). He summarizes the comparative value orientations as follows (Ferraro, 1998, page 112):

U.S. CULTURE	CONTRASTIVE CULTURES
Individualism	Collectivism
Precise time reckoning	Loose time reckoning
Future Oriented	Past oriented
Doing (working, achievement)	Being (personal qualities)
People controlling nature	Nature controlling people
Youthfulness	Old age
Informality	Formality
Competition	Cooperation
Relative equality of sexes	Relative inequality of sexes

Table Three: Comparative Value Orientations – United States

Ferraro uses these value contrasts to demonstrate how cultures have different behaviors and assumptions. His intention is to facilitate an increase in self-awareness for the American businessperson so that they will understand how cultural values affect thinking and behavior and how American values differ from other cultures. With this information, Americans will be in a better position to avoid, or at least minimize, breakdowns in cross-cultural communication.

National Culture Dimensions

Ferraro's dimensions provide a fairly comprehensive overall view of national cultures. The two dimensions that should be included in Ferraro's research are Trompenaars dimensions about emotions and relationships. These dimensions are neutral or emotional, and specific versus diffuse. In looking at cross-cultural values for this project, it would be beneficial to have research on these two dimensions as these issues have previously surfaced in international negotiations. For negotiations, people should know if establishing relationships is important and if people will be more neutral or emotional in their negotiation tactics. Ferraro's research forms the basis for this project as his research is primarily from an American perspective of cultural differences. Ferraro's research best combines the work on dimensions conducted by Hofstede, Trompenaars, Hall, and Adler. It is necessary to explain the dimensions used for this project in more detail.

(1) Individualism versus collectivism:

Trompenaars describes individualism as "a prime orientation to the self" whereas collectivism is "a prime orientation to common goals and objectives" (Trompenaars,

1993, page 47). According to Ferraro, the ideal of the individual is deeply rooted in American society. Americans tend to believe that the individual is the source of moral power, and that the individual is totally competent to assess the effects of one's own actions and also to be responsible for those actions. This emphasis on the individual stems from childhood when children are taught to make their own decisions, clarify their own values, form their own opinions, and solve their own problems (Ferraro, 1998, page 90). In a business environment, individualistic societies tend to be self-motivated and many business relationships are based on self-interest. People from these societies tend to be comfortable with working alone and seek personal recognition for their accomplishments. In contrast, people from a group-oriented society will base their work relationships on mutual self-interest. These people will seek to advance the interests of the group and seek group recognition for their accomplishments.

The individual versus group orientation can also influence decision-making. In the United States, individuals make decisions, which results in relatively quick decision-making, but slower implementation as the individual has to explain the decision and gain approval from other members of the group (Adler, 1997, page 26). In a group-orientated culture, the group makes the decision, which results in a more lengthy decision process, as group concurrence is necessary before making a decision. Although group decision-making may take longer, the actual implementation can occur almost immediately after the group makes its decision.

(2) The temporal dimension (M-time versus P-time):

Edward Hall provides the distinction between monochronic time (M-time) and polychronic time (P-time) in his book <u>Beyond Culture</u> (1976). M-time cultures, such as

the United States, emphasize adherence to schedules and being on time. P-time cultures place more value on the completion of transactions and the involvement of people rather that strict adherence to clocks and schedules. According to Hall, "M-time emphasizes schedules, segmentation, and promptness. Several things happening at once are characteristics of P-time systems. They stress involvement of people and completion of transactions rather than adherence to preset schedules. P-time is treated as much less tangible than M-time. P-time is apt to be considered a point rather than a ribbon or a road, and that point is sacred" (Hall, 1976, page 17).

Trompenaars also discusses this value and refers to P-time as synchronic, in which people will take on many activities at the same time. To these people, punctuality is not as important as other values, such as taking the time to talk with a friend that they meet unexpectedly. In contrast, the sequential person follows a "critical path" and adheres to the schedule. This person may place more emphasis on punctuality and view time as a precious commodity (Trompenaars, 1993, page 112).

(3) The temporal dimension (past, present, or future):

Americans tend to be future oriented rather than past or present oriented. Therefore, they believe that it is required to improve on the past and that they should look toward the future as a guide to present action (Ferraro, 1998, page 95). This dimension can have a significant impact on how different cultures accomplish planning. Cultures that are oriented to the past believe that plans should be evaluated based on their fit with customs and traditions. They also believe that changes are only justified based on past experience. In future oriented cultures, such as the United States, people tend to evaluate plans according to projected future benefits (Adler, 1997, page 30).

(4) Doing or Being:

People from the United States tend to place a high value on work, activity, and the achievement of outcomes. Americans have been known for their aversion to idleness and for their preference for a person of action over a person over ideas. This emphasis on "doing" places demands on people to participate in the type of activity that results in measurable accomplishments (Ferraro, 1998, page 99). In other cultures, people may place more value on personal qualities. In these societies, it is the intellectual or contemplative person who is held in the highest esteem rather than the person who gets things done.

As Adler describes this dimension, there are two types of cultures, "doing" and "being." The differences between "doing" and "being" cultures can also affect how people accomplish planning. The "being" cultures do not push things to achieve short term results, whereas, "doing" cultures believe that planning can speed up the change process if plans are outlined with specific target schedules (Adler, 1997, page 28).

(5) Relationship to Nature:

In American culture, people tend to believe that nature and the physical environment can be controlled and manipulated to meet their needs. Americans think that they have control over their environment and that they can influence the outcome of events. Other cultures may believe that the natural environment shapes people and that people have little control over the outcome of events.

Trompenaars describes this dimension as being inner-directed or outer-directed. Americans are inner-directed in that they tend to believe that what happens to them is their own doing. The perception of outer-directed societies can be that the person is

offering an excuse for failure if they do not take responsibility for their actions. However, in outer-directed countries, it is not seen as a personal weakness to acknowledge the strength of external forces (Trompenaars, 1993, page 129).

(6) Youth versus Age Orientation:

The United States is a youth-oriented society in which importance is placed upon a youthful spirit. Americans tend to keep up with new trends and emphasize what is new and young. This youth orientation is consistent with a future oriented society where the youth are seen as having the necessary characteristics for a productive member of society with the most amount to offer in the future. In contrast, the elderly are those people with the least amount of future ahead of them. In other societies, more emphasis may be placed upon older people where age brings respect and honor. In these societies, according to Ferraro, "older people are looked to as advisors whose opinions are highly valued because of their vast experience" (Ferraro, 1998, page 103).

(7) Informal or Formal:

Americans tend to operate in an informal environment and can often be uncomfortable when presented with the formality associated with ceremonies, tradition, and social rules found in other cultures. People from the United States seem to go out of their way to play down the importance of rank and status. This informal culture is also evident in the desire by Americans to establish friendly relationships quickly by getting on a first name basis as soon as possible (Ferraro, 1998, page 104). Americans may also ask personal questions to get to know someone and find a common identity, but other cultures may see this as an invasion of privacy as it imposes a degree of intimacy that has not yet been established.

Hofstede (1991) examines the formal and informal dimensions of societies in the form of power distance in the way that cultures relate to authority in the workplace. In the United States, for example, Americans tend to view a relatively equal distribution of power in the workplace. Thus, they tend to be more informal in their interaction within the workplace among different levels in the organization.

(8) Competition or Cooperation:

Americans have a strong desire to experience the "thrill of victory" and to be the best at everything they do (Ferraro, 1998, page 106). The value placed on competition is introduced in the United States at an early age. Competition is a part of school life as well as extracurricular activities. Bringing up children in this environment inevitably leads to a competitive society. Other cultures, however, will value cooperation over competition and may not respond to competitive stimuli as enthusiastically as Americans. This may be the case particularly for group oriented cultures where they do not want to excel over other members in the group.

(9) Relative equality or inequality of sexes:

Ferraro contends that Americans experience a relative equality of the sexes in the business environment. He states that "the United States affords women a relatively high degree of status in terms of legal, economic, political, and social prerogatives at their disposal" (Ferraro, 1998, page 109). In contrast, other cultures may have traditions that afford women few freedoms. Due to these differences in cultural values, there may be mismatched opinions of what roles and responsibilities are suitable for women.

(10) Specific versus diffuse relationship:

According to Trompenaars, Americans are considered as specific in their relationships. Thus, Americans tend to engage others in specific areas of life and single levels of personality. Specific cultures have "principles and consistent moral stands independent of the person being addressed" (Trompenaars, 1993, page 90). Diffuse cultures would be more likely to engage others in multiple areas of their lives and at several levels of personality at the same time. These cultures have "highly situational morality depending on the person and context encountered" (Trompenaars, 1993, page 90).

In negotiations, diffuse cultures may want to take more time to get to know the other partner and build a relationship with them. They believe that they should get to know someone before business can be discussed. Specific cultures are more likely to want to get to the point and not "waste time" in getting to know one another. They want to know very little before communication can occur.

(11) Neutral versus emotional:

Americans tend to be emotional in their business approach. Thus, they reveal their thoughts and feelings both verbally and non-verbally. They can be animated as they allow their emotions to flow without inhibition. In contrast, neutral cultures do not reveal what they are thinking or feeling. They appear to be cool and self-possessed. In conducting negotiations, both parties must be aware of how this dimension can affect their interaction, as expectations can be significantly different.

Relevance of Dimensions

One issue that must be addressed in relation to all of the above research is whether or not cultures can be classified into dimensions. It is necessary to point out that the discussion of national culture relates to the mean behavior of a country. This information is not meant to convey that all individuals from a country will necessarily behave in the same manner. All cultures may not necessarily be homogenous within a country and therefore it is realistic to assume that certain individuals may not fit these dimensions. People should exercise caution when applying these dimensions and should not blindly apply them to individuals within a culture. Despite the inherent difficulty of making generalizations about values in heterogeneous societies, such as the United States, it is still possible to establish value patterns. These value patterns should be viewed as statistical statements of probability that can be used as a framework to help identify some basic value differences between the United States and other cultures. If ignored, these value differences may negatively affect communication and cooperation in the international business environment (Ferraro, 1998, page 89).

International Cooperation in Space

The main problem with the literature regarding international cooperation in space is that it does not provide enough insight into cultural factors and how they affect interaction and cooperation between the international partners. Some of the articles and reports touch on this issue briefly, but do not relate it to a particular theory of national cultural differences. This is the main critique of many of these articles and reports. Even

if an author presents a discussion related to cultural differences, it usually lacks sufficient evidence and substantial discussion of the issue.

The Space Policy magazine produced a special edition in August 1992 that focused on international cooperation in space. International authors with experience in their country's space program wrote country specific articles. The Space Policy Institute and the Association of Space Explorers introduce this edition with a discussion of new opportunities and new approaches to international cooperation in space. This article provides the main background for the political, economic, social, and technological factors that make international cooperation in space more important now than ever before. George van Reeth and Kevin Madders, members of the European Space Agency, discuss the framework for international cooperation in space. They also discuss the country specific factors that make international cooperation a necessity for each participating country. Kenneth Pederson, Research Professor of International Affairs at Georgetown University's School of Foreign Service, identifies how the end of the Cold War has made international cooperation endeavors more feasible and attractive to the United States. Chikado Iguchi presents the Japanese role in space and discusses benefits of international cooperation. Mikhail Ya. Marov discusses the challenges for Russia in establishing a strong space program in the post-Cold War era. He introduces some of the major political and economic issues that have had a significant impact on the Russian space program. This edition of Space Policy focuses on the new challenges for national and international space policy in the post-Cold War era. The articles in this edition helped to establish the basis for why international cooperation in space is essential in the current world environment.

The NASA Advisory Council established a Task Force on International Relations in Space. This task force submitted a report, International Space Policy for the 1990s and Beyond, to the NASA Advisory Council regarding problems and recommendations for international cooperation. This report provides background information on cooperation and how it is defined within the NASA organization. It also provides some discussion as to the differences of the international partners' national cultures, such as organizational hierarchy and leadership. However, it is only a brief discussion and needs to be further evaluated and established. Also, this report should be treated with caution as it was completed during the Cold War and there have been many changes within the Russian space program since the fall of the Soviet Union. Therefore, the report's information must be analyzed in its particular context.

Glenn Hoetker and Thomas Lahr, members of the NASA International Program Office, discuss some of the problems regarding cooperation with Japan in their report, Access to Japanese Aerospace-Related Scientific and Technical Information. They discuss the issue of security and communication and how trust plays a major role in gaining access to information. This article specifically addresses how the human network in Japan is a vital part of communication. As Hoetker and Lahr explain in their report: "Even more so than many countries, the flow of information through the 'invisible college' of human contacts is a vital part of scientific communication in Japan. Because of language and cultural difficulties, few Americans are part of this network. Moreover, few Americans have spent sufficient time in Japan to make the necessary connections to take advantage of this information flow" (Hoetker and Lahr, 1993, page 4). Although this

information is useful, this report only provides a limited view of one specific cultural difference.

The European Science Foundation completed a report on U.S.-European Collaboration in Space Science in 1998. Although this report focuses primarily on European cooperation with the United States, it is still useful as it presents a general overview of the benefits of international cooperation in space. This report helps to justify why international cooperation has become increasingly important. The primary contribution of this report is the explanation of why it is necessary to overcome cultural differences and how cross-cultural interaction can benefit the involved countries.

Daniel Jacobs, Manager of Russian Integration, International Space Station, provides a useful overview of the International Space Station. His report, The International Space Station: Background and Current Status, provides most of the information related to each country's contributions. He also presents some of the problems and challenges that the international partners faces in completing the International Space Station. Jacobs's specific contribution relating to cultural differences is his emphasis on the importance of cross-cultural interaction. He specifically explains how each country must cooperate on an international scale in order for the ISS to be a success.

NASA Internet sites, including fact sheets, annual reports, and handbooks are helpful in providing a brief overview to NASA structure, organization, and mission. Most of these sites simply provide background information and do not provide analysis or evaluation of subjects relating to international cooperation in space. Another issue with NASA sites is that the information shows a fairly positive view. Therefore, the

information may not be as critical as it should be regarding differences between the international partners and how those differences can cause problems.

The literature discussed in this chapter has helped to meet the project objectives by providing the key dimensions relevant to cultural differences. The literature has provided limited discussion regarding the importance of international space cooperation and how cultural differences can affect cooperation. Also, the literature has not provided specific details of how the dimensions relate to Japan and Russia specifically. Although these countries may be included in some of the literature, the results may be different in a cooperative environment focused on international space cooperation. Therefore, this project aims to uncover new data regarding American perceptions of Japanese and Russian cultures in the international space environment by conducting interviews with NASA employees.

The interviews will expand on Ferraro's work regarding contrasting cultural values. In his book, Ferraro presents the American classification in his value dimensions, but he does not provide specific information as to how Americans view other cultures along these dimensions. He discusses some of the value differences, but primarily uses African countries as examples. This report will focus specifically on how Americans view Japan and Russia in the value dimensions based on the interview results. As previously mentioned, this report includes two additional dimensions from Fons Trompenaars. These two dimensions are critical to the interaction between the United States, Japan, and Russia, specifically in negotiations.

By evaluating the literature relating to national cultures and international cooperation in space, as well as conducting interviews, this report will reach conclusions

regarding how national cultural differences can have a significant impact on cooperation in space activities. This report will help to relate cultural theory to the practice of international space cooperation. This analysis will provide insight for recommendations of improvement for cross-cultural interaction between the international partners.

CHAPTER III:

METHODOLOGY

Introduction

This report analyzes the effect of national cultural differences on international space cooperation from a qualitative perspective. This model of evaluation focuses on inductive analysis so as to illuminate the contrasting cultural values of the international partners. The first step in evaluating cross-cultural cooperation in space activities is to examine the interaction between the United States, Russia, and Japan on the International Space Station (ISS). Currently, these three countries are involved in the development of the ISS and have had numerous negotiations and interaction.

Next, it is necessary to focus specifically on some of the cultural differences between the partners and show how those differences affect their interaction. The research strategy included the use of surveys to collect information in a standardized format. Interviews were conducted at NASA's Johnson Space Center with ISS personnel, including space station crews, training staff, and contractors. In addition, some interviews were conducted with Russian and Japanese personnel at the Johnson Space Center.

Interviews

The interviews followed a semi-structured format to allow for elaboration of specific cultural experiences. The interview questions were fairly open-ended to allow for elaboration of experiences relating to the dimensions specified in this report. It was not the intention to force respondents into classifying cultures in certain dimensions, but instead to find out if cultures followed specific dimensions based on the interview results.

Therefore, the questions focused on the respondent's personal experiences to prevent leading or unbiased questions and to avoid forced answers.

The interviews were conducted face-to-face with the respondents. Interviews were only audio taped if approved by the respondent. Some respondents did not want to be taped so as to avoid any possibility of an uncomfortable situation if the information was taken out of context. Most of the information received is sensitive due to the continuing relationships between the international partners. Some interviews with Japanese and Russian personnel involved the use of interpreters. These interview results are slightly shorter and less descriptive due to the increased interview time associated with the use of an interpreter.

Interviews were used instead of written surveys for several reasons. Respondents may be less likely to provide accurate beliefs on questionnaires due to the sensitive nature of the questions. Although this may also occur in interviews, the person conducting the interview can respond to any concerns that the respondents may have. Another disadvantage of questionnaires is that there may be the potential for a low response rate as there is already a large amount of paperwork within the organization. Also, it is difficult to expand on key areas once the questionnaires have been completed and turned in. One of the most significant disadvantages with a questionnaire is that there is no option for clarification if there is a misunderstanding of questions or answers.

Although interviews also have disadvantages, they are not as significant for this project. Interviews have the potential to be influenced by interviewer characteristics and there is also the possibility for interviewer bias. However, a neutral and well-prepared interviewer can overcome this obstacle. It is also possible that respondents may feel their

answers are not anonymous and therefore may be less forthcoming. However, the interviewer can help reassure respondents over any concerns that they might have relating to anonymity. Despite these disadvantages, interviews still provide significant advantages over the written surveys. Interviews provide the key ability to clarify questions and to expand on critical experiences related to the cultural dimensions. Also, the presence of the interviewer encourages participation, and thus can result in a more informative interview.

There were twenty interviews conducted with NASA personnel. All personnel interviewed had at least one year of experience in working with Japan or Russia. The respondents were employees of either the Johnson Space Center or the United Space Alliance, a NASA contractor agency. There were also an equal number of male and female personnel interviewed. In addition to the American interviews, there were two interviews conducted with Japanese personnel from the Space Development Agency of Japan (NASDA) and two interviews conducted with Russian personnel from the Gagarin Cosmonaut Training Center (GCTC).

Cultural Dimensions

The questions were structured to analyze how Americans perceive cultural differences based on their experience in working with personnel from Japan and Russia. The questions included general questions regarding cultural differences and how the differences may have created problems and conflicts. Respondents were also asked to provide specific examples regarding the impact of cultural differences. The information received from the interviews was then related to the most significant cultural values as

presented by Gary Ferraro, author of <u>The Cultural Dimension of International Business</u> and by Fons Trompenaars, author of <u>Riding the Waves of Culture: Understanding Cultural Diversity in Business</u>. These cultural values are associated with the following dimensions:

- individualism versus collectivism

- temporal dimension (M-time versus P-time)

- temporal dimension (past, present, or future)

- doing or being

- relationship to nature

- youth versus age orientation

- informal versus formal

- competition or cooperation

- relative equality or inequality of sexes

- specific versus diffuse relationship

- neutral versus emotional

The results of the interviews clearly provided evidence for each dimension with the exception of one dimension. There were few examples regarding a country's relationship to nature. It is important to recognize that none of the respondents will be representative of their national cultures. The respondents are all scientists and have had science and technology training. All of the respondents had their primary education in an engineering background and therefore will be more focused on people controlling nature. This may not be similar to the other people within their cultures. Therefore, due to the lack of clear evidence, this dimension will not be discussed as it relates to Russia and

Japan. The other dimensions, however, have significant personal examples from ISS personnel. Each country may not necessarily fit directly into one end of the dimension, but the examples will explain where they fit along the dimension.

Respondents were also asked about their recommendations to improve cooperation and interaction with Japan and Russia. These answers help to provide insight for the recommendations to improve cross-cultural interaction between the international partners. The list of interview questions can be found in appendix one.

The same questions were also asked to a limited number of Japanese and Russian personnel to find out how they view their own country's culture compared to American culture. Since there is only a small sample of Russian and Japanese responses, the information is just used to help confirm what was found in the interviews with the Americans. However, further perspectives from Japanese and Russian personnel would provide an opportunity for extended research.

Observations

Another means of research was through observation of the international partners during negotiations. Observations provide an additional data collection technique that allows for insight into the negotiation process. This observation included passive unobtrusive observation of the interaction between the international partners during negotiations. The observations occurred during teleconferences, videoconferences, and face-to-face meetings with the Japanese and Russian space agencies. Teleconferences are conducted on a weekly basis between the United States and Russia and the United States and Japan. Videoconferences are conducted once a month between all of the international

partners. Face-to-face meetings are conducted on a case-by-case basis depending on country specific requirements. These meetings revealed how the international partners interact and how cultural differences can affect negotiations.

Results

One issue about the results of this project is that it is important to consider the context of the project. The data regarding cultural values and cross-cultural interaction comes from a cooperative environment in which each country has similar overall goals and objectives regarding the ISS. It is important to consider that the results could have been different if taken from a competitive business environment where a win-win situation may be less likely to occur. However, this information on cultural differences is still useful for the wider business environment, as international companies will have an improved understanding about the primary differences between Americans, Japanese, and Russians. In addition, the recommendations are relevant to all companies conducting international negotiations. This information can help companies to improve their business relations as the world moves toward globalization.

CHAPTER IV:

INTERNATIONAL SPACE COOPERATION:

PERCEPTIONS OF VALUE DIFFERENCES

Introduction

This chapter will discuss the interaction and cooperative efforts of the United States, Russia, and Japan on the International Space Station (ISS). This chapter explores the differences in national cultures that NASA personnel have experienced while working on the ISS. These cultural differences will then be applied to value dimensions to show how the United States, Russia, and Japan have contrasting values that can influence their interaction on the ISS. Through the systematic process of interviews and observations, this report will provide significant conclusions regarding the work of Gary Ferraro and Fons Trompenaars as it relates to American perceptions of Japanese and Russian culture. The interview results show how these national cultural differences can affect international cooperation in space activities.

The following information regarding the key differences between Americans, Russians, and the Japanese comes from interviews and observations. This analysis will primarily be from an American perspective of the cultural differences, but will also include perspectives from both Russian and Japanese personnel who have been involved with the ISS. All of these value dimensions help to explain the American culture and why Americans behave the way they do. By comparing the American culture to the Japanese and Russian cultures, people will have a greater understanding of the perceptions of cultural differences. The following sections look at American perceptions of Japanese

and Russian cultures and how they differ from the United States. The following results are based on interviews conducted with Americans, Japanese, and Russian personnel from NASA's Johnson Space Center. When references are made to Americans, Japanese, or Russians, this refers to Americans, Japanese, and Russians within the space agencies.

Contrasting Cultural Values – Japan

From the American perspective, the Japanese are a hard working and skilled society that is dedicated to achieving their goals and objectives in the space environment. Japan has contributed significantly to the technology of the ISS and will continue to be a strong future partner in international space cooperation. Therefore, Americans need to better understand their cultural values and how cultural differences can affect their business interaction with Japan.

(1) Individualism versus collectivism:

The Japanese are a collectivist society. This group orientation is strongly apparent in their negotiations with NASA personnel. It takes a long time for the Japanese to come to a decision because they must first discuss the issue with the group and achieve consensus on the issue. In negotiations, Americans will often view the Japanese as stalling when they take extensive time to discuss the issue with the group. Americans are focused on getting the job done and have the authority to make an individual decision. However, the Japanese are often only tasked with gathering information and then bringing it back to the group to make a group decision. One NASA employee explained this contrast in approaches: "The Japanese do not do anything unless they are in total agreement with the rest of the group. It makes negotiations three times longer because

they have to get consensus with the rest of the group. We're not used to that because we work independently. We are tasked to get a job done. They are tasked to collect information and bring it back to the rest of the group. The group will discuss the information and then make a group decision. There is no such thing as an individual decision with the Japanese agency."

One Japanese employee from Japan's space agency explained the group orientation associated with decision-making: "In decision-making we ensure consensus by suppressing individuals who disagree with the group. This is the way that we keep harmony among the group." Also, if an individual's ideas are not compatible with the group, then they may be removed from the group. The Japanese take their group focus very seriously and may view individual ideas as a threat to group consensus.

From a positive perspective, Americans think that the Japanese work extremely well together and are a very tight group. As one NASA employee proclaimed: "The Japanese are a very tight group and work well together – even more so than the Americans." This group orientation allows for effective communication within the Japanese organization.

(2) The temporal dimension (M-time versus P-time):

The Japanese follow an M-time culture as they strictly adhere to schedules. The Japanese like to set agendas with NASA personnel for any meeting or conversation. As one NASA employee remarked: "The Japanese are very focused on creating schedules and setting agendas for each meeting even if only for a brief conversation. Americans would normally just sit down and discuss the issue without an agenda." When the Japanese personnel come to the United States, they want to know exactly what their task

and time schedule will be. The Japanese also like to plan details of schedules very far in advance. In one instance, the Japanese representatives wanted a detailed training schedule two years before the actual implementation date and the training had not yet been approved.

During negotiations, if an agreement is made between NASA and NASDA, then the Japanese will immediately provide a new timeline and schedule with updated information relating to the new agreement. The Japanese prepare these schedules for every aspect of the ISS development and assembly process. If the Japanese ever have trouble in keeping to a schedule with the ISS, then they will admit to any problems and propose an alternative schedule. One NASA employee discussed the Japanese emphasis on schedules: "The Japanese appear to be extremely hard working and are very reliant on schedules. Even if they cannot keep to a schedule, they will admit to the difficulty in following the schedule. They will then create a new schedule to update any setbacks or difficulties."

(3) The temporal dimension (past, present, or future):

The Japanese do not fit into any specific category in this dimension, as they appear to provide even focus on the past, present, and future. Some of their decisions and behavior are based on past traditions and customs. The Americans often have a difficult time understanding many of the traditions and therefore find it uncomfortable to travel to Japan to conduct negotiations with NASDA. One NASA employee stated: "I would prefer not to work with the Japanese as I do not understand their traditional culture or their emphasis on specific customs."

At the same time, the Japanese are future oriented in that they have a long-term perspective. One example of this future oriented perspective is that the Japanese hire people for life. For this reason, there are few Japanese personnel who want to leave NASDA and come to work at NASA. Therefore, most of the Japanese employees are involved with exchange programs between NASA and NASDA so that they will be able to return to Japan without fear of being an outcast. They believe that coming to the United States to work and cutting their ties in Japan could be career ending if they wanted to return to Japan. One NASDA employee explained this situation: "In Japan, we tend to stay in our jobs for life. Normally, coming to the United States to work would be career ending, but since I work for a Japanese agency, it is more acceptable."

The Japanese also appear to be future focused based on their technology and skill level, which NASA has been extremely pleased with on the ISS components. NASDA has been a positive contribution to the ISS partnership when looking at this aspect of future oriented technology.

(4) Doing or Being:

It would appear that the Japanese place an equal emphasis on doing and being. The being aspect is primarily related to how well a person can interact with members of the group. The importance is not necessarily placed on individual achievement, but on how well an individual contributes to the group so that the group can achieve its goals and objectives. The Japanese place a high value on personal qualities in relation to the group. However, the Japanese still focus on accomplishing objectives and taking action so they are not averse to the doing culture.

(5) Youth versus Age Orientation:

The Japanese place a high level of importance on the older generation as they see them as having knowledge and experience. However, most of the employees working with NASDA that come to the United States are from the younger generation. Most of the NASA employees that work with the Japanese are also younger and therefore develop better relationships with each other. However, when the Japanese are working with an older NASA employee, there appears to be a great amount of respect given.

(6) Informal or Formal:

The Japanese are very formal in their interaction. They treat one another in a formal manner, but are a tight group and work well together. The Japanese also place an importance on saving face and avoiding confrontation. In negotiations with the Americans, this has meant that the Americans may not be able to joke as much as they normally would with other Americans. Also, it is very rare for there to be any type of visible conflict among the Japanese group as they will present a united front. This formality may be uncomfortable for some of the Americans, but both the Japanese and Americans have learned to adapt to each other's cultures and work together. As one NASA employee stated after years of working with the Japanese: "I find the Japanese very easy to work with. Although the interaction was quite formal at first, we have developed strong working relationships with one another and therefore now work on a more personal and informal level as our relationships have progressed."

(7) Competition or Cooperation:

The Japanese seem to be fairly cooperative in their relations with NASA. Some Americans see the Japanese as cooperating for their own benefit so as to develop their

own space program independent of the United States. One NASA employee explained this view: "The Japanese will cooperate to gain as much information as possible for their own benefit."

Another view on Japanese cooperation is that they are very solution oriented and want to create win-win situations. If they disagree with a proposal, then they will come back with an alternate proposal that meets both American and Japanese requirements. One NASA employee explained the Japanese role in negotiations: "They are very solution oriented and they want to work with you. They come to the other side of the table. We are on the same team with the same interests." Also, it is highly unlikely that the Japanese will give a direct negative response to a proposal. Instead, they will defer the conversation to a later time when they can provide an alternative to help maintain a cooperative relationship.

(8) Relative equality or inequality of sexes:

From the American perspective, in Japan, men and women are not treated as equals. As one NASA employee explained: "With the Japanese, women are in rigorous roles, but not management positions. I have yet to see a woman in a leadership role since I have been working with the Japanese on numerous different projects." According to a Japanese woman who works with NASDA, it is difficult for women to achieve leadership positions. If a woman joins NASDA at a young age, then she will only be given a two-year contract as it is expected that she will get married and leave the organization. A young woman can only sign a short-term contract that will be re-negotiated after two years. Therefore, it is difficult for women to build a strong position in the organization.

Also, as one female NASDA employee stated: "Women are not expected to have college degrees and most jobs available are only for secretarial positions."

From the American perception, some Japanese appear to be uncomfortable when they work with American women at NASA. As one female NASA employee explained: "They are a little uncomfortable around me, as they are not sure where I fit in, especially in a social relationship. Social rapport is very important as personal relationships give you a common ground and facilitate negotiations. I don't have the same opportunities to establish the personal relationships that men do. I would not be able to invite them for dinner and have them feel comfortable." The Japanese men appear to be much more comfortable when in an all-male setting. Some of the American women will therefore not be involved in the social activities. The main problem with not being involved in social activities is that is where much of the relationship building occurs. The result can often be that the Japanese men from NASDA do not work as well with the American women from NASA.

(9) Specific versus diffuse relationship:

The Japanese are more diffuse in their relationships as they are insistent on taking the time to build a personal relationship before they start with business. They want to build trust in the relationship before they begin negotiations. This relationship building time can often be frustrating for some Americans as they tend to be more focused on getting the business accomplished. However, many of the Americans believe that they have learned from the Japanese and that they now place greater importance on building and maintaining relationships. Most Americans recognize that the ISS will be a long-term

project and that continuing relationships with the Japanese will be crucial to the success of the ISS.

The Japanese enjoy social activities and seem to enjoy the American social experience when they visit the United States. It has become common practice at NASA to have social activities with the Japanese prior to starting negotiations. Both the Americans and the Japanese believe that social activities improve the negotiation process and also make it more fun. One NASA employee described his experience with the Japanese: "I have found the Japanese to be very social. They like to entertain and want the Americans to experience their culture."

(10) Neutral versus emotional:

The Japanese are neutral in their business negotiations at NASA. Some Americans do not like to negotiate with the Japanese because they find them extremely difficult to read which makes negotiations more difficult. As one NASA employee stated: "The Japanese are more contained than the Americans are. It's difficult to read the Japanese. They don't touch you or get close to you." Many Americans are uncomfortable with the lack of emotion from the Japanese side of the negotiating table. As a result, many Americans feel that they do not know how to approach the Japanese in the negotiation process. Despite the initial discomfort that some Americans may feel with the lack of emotion, Americans have become more comfortable over time as they get to know the Japanese and better understand their behavior.

Contrasting Cultural Values – Russia

The Russians are a very proud culture and they are extremely proud of their space program. This national pride often presents problems and challenges in working together on the ISS. For example, the Russian view of the ISS is that it should be a bilateral partnership between the United States and Russia. Russia approves of the other international partners, but only wants to interact with the United States. Russia does not see itself as partners with the other international partners in the ISS. In addition, Russia would like the space station to be set up as two separate entities, the Russian side and the American and international side. Russia would like to manage its own section of the space station, and then leave the United States to manage the international section of the space station. However, as the lead integrator of the ISS, the United States will not allow this separation to occur. Although not in complete agreement, Russia has agreed to abide by the ISS management structure, since Russia recognizes that it would not be able to accomplish a space station on its own. This strong Russian position is very much a result of cultural issues, which will be discussed further.

(1) Individualism versus collectivism:

The Russians are a collective society. According to a Russian working with the United Space Alliance: "Russia has a group orientated mind set, but primarily because of our religious and economic background. The Russian Orthodox Church teaches that the good of society is more important than the individual. In addition, many Russians are in the agriculture business and understand that it is necessary to work together if they are to survive. When times were tough, the farmers would work on each other's farms to

produce the required amount of food." This interdependent background makes the Russians more reliant on a group-oriented culture.

The Americans see the Russians as remarkably family and community oriented. In traveling between NASA and Star City where the Russian cosmonaut training occurs, personnel from Russia will use the time to get together and have group discussions. In contrast, the Americans will often separate themselves from the group to get their individual work done. The Russians do not like to spend any time working alone when they could be interacting with the group.

(2) The temporal dimension (M-time versus P-time):

The Russians do not like to set specific time schedules or deadlines. They are a polychronic society in that they can do many things at once and want to focus on the task as opposed to a schedule. To balance the differences between the Russians and Americans on this issue when working on the ISS, agendas are set, but only state the issues that need to be addressed and not specific time schedules. The Russian lack of punctuality can often cause problems with training as crews do not show up on time, but the Americans have also learned to show up later than the original start time to accommodate for the Russian disinterest in specific time schedules.

As far as long term planning, the Russians may create an initial time schedule for the ISS, but will not update the schedule if an issue changes. This lack of concern for accurate timelines can be frustrating for the Americans who update plans on a weekly basis to ensure that any changes are incorporated. One NASA employee explained her experience with the Russians: "The Russians do not work with schedules or plans. They may create an initial plan for training but will not update it as things change. We, on the

other hand, update our plans and schedules on a regular basis. Once the Russians feel like everything will work out in the time that they believe to be suitable, then they do not update their plans." In addition, if Russians can not adhere to a time schedule, then they will not admit that they are behind schedule until the due date has passed. This lack of respect for schedules is extremely frustrating for Americans and continues to be a problem in the American and Russian interaction.

The Russians have also figured out how to take advantage of the American focus on time during negotiations. When negotiations occur in Russia, the Russians may stall on a specific issue until the last day of the negotiations and then disagree on the issue. The Russians hope that the Americans will not fight them on the issue since the Russians know that the Americans have a strict time schedule for their return to the United States. One American explains her negotiation experience while in Russia: "Since this is the last day that we will be in Russia, they try to take advantage of our tight time schedule. They normally expect Americans to adhere to their schedule and give into them." This negotiation tactic has not been effective when Americans relax their schedules and agree to work until they resolve the issue.

(3) The temporal dimension (past, present, or future):

The older generation of Russians tends to base most of their decisions on the past. At the same time, the younger generation has more long-term strategic objectives. As one NASA astronaut remarked about his experience in Russia: "The younger generation is embracing the western way of doing things as they did not experience much of the old style long enough." Many Americans see the younger generation as being easier to work with as they are more open to change than the older generation. In contrast, the older

generation looks to the past and wants to go back to the way things were when the government provided for everything. The older generation focuses more on the days when Russia was a major superpower and was recognized for everything they did. These people are much more resistant to change and, according to NASA personnel, are harder to work with on the ISS.

The Russians approach negotiations from a future-oriented perspective. One NASA employee explains his experience with the Russians in negotiations: "They are more long-term focused. We focus more on the short-term and are not as consistent over the long-term. They know how to take advantage of this so that they can achieve their long-term goals." The Russians are more likely to give up one negotiation so that they can win another negotiation that fits better with their long-term plans.

(4) Doing or Being:

Most of the focus in Russia is on the "being" dimension. The Russians are much more focused on people as opposed to achievements. As one NASA employee remarked: "Russians focus on individual knowledge. Knowledge is power." Therefore, the people most respected in society are those with knowledge. This focus on knowledge carries over into their training and management style. When instructing, the Russians do not provide written handouts and they do not like to provide videos of training. By giving away the information, they believe they are giving away some of their power. These practices are in sharp contrast to American methods and it is difficult for some astronauts to adapt to the Russian methods of training. The Russian focus on knowledge and information stems from their history of a secretive society in which very little

information was shared with the people. If someone had knowledge about an issue, then they were usually in a position of power.

(5) Youth versus Age Orientation:

The Russian focus on youth versus age follows a similar pattern to the temporal dimension relating to the past, present, and future. The older generation of Russians prefers to work with older Americans whereas the younger generation of Russians prefers to work with the younger Americans. Due to the history associated with the United States and Russia, people feel that they can relate better to people from their generation. According to a young NASA employee involved in negotiations with the Russians: "When I arrived for the negotiation, the older Russians were disappointed because they assumed that NASA had only sent a low-level employee because of my age. However, I was actually superior in position to most of the Russians at the negotiation table."

(6) Informal or Formal:

According to the Russians working in the United States, the Russian Space Agency is an extremely formal organization. As one Russian employee explained: "We do not call anyone by their first names unless it is a personal friend. This is very different from the American business relationship." Americans see the Russians as distant and reserved at first. The initial distant nature may be a result of the Russian history of suspicion and distrust. However, as the relationship progresses, Russians become more informal in their interaction once trust is established. When the Russians work with the Americans over a longer period of time, they will become more informal and use first names with their American counterparts. Many Americans feel that the Russians operate more effectively in an informal setting. For example, negotiations will often continue

more effectively when outside a formal negotiation setting and in an informal social setting.

(7) Competition or Cooperation:

From the American perspective, Russians are competitive by nature primarily because of their history with the United States during the Cold War. The Russians still put a lot of emphasis on being first in their achievements and objectives. As one NASA employee explained: "The Russians are still highly competitive. To them, they have been involved with space activities just as long as we have and therefore have just as much experience. They believe that their training is often better than the American training and they want to do things the way they have always been done in Russia." The primary limiting factor today, however, is that the Russians do not have the money to do things the way that have been done in the past. Therefore, much of their competitive nature is minimized by this lack of economic resources. The Russians are also more likely to cooperate if they feel that they have something to gain. For example, according to one NASA employee: "The Russians want to be part of the space station and will cooperate to be a part of it. They recognize that they would not be able to do it on their own due to the economic situation."

From the individual perspective of American astronauts working with the Russian cosmonauts, they do not see the Russians as competitive, but instead extremely cooperative. As one American astronaut stated: "On board the Mir space station, the Russians were very cooperative as they wanted it to be a successful flight." Although there still may be competition between the Americans and Russians on a larger,

management-level scale, there is more cooperation once the astronauts and cosmonauts work together.

One area where Russia's competitive nature becomes apparent is in Russian negotiation tactics. The Russians will take advantage of any lack of continuity by the Americans. As one experienced American negotiator stated: "Russians are good at keeping their word, but the main problem arises when there is a misunderstanding in what everyone has agreed to. They won't necessarily protect your interests. They will go for what they want. They are good at quoting pervious agreements and can use that to their advantage. We're not as good because we don't have a good means of tracking previous agreements. When the Russians quote agreements we are often surprised and caught off guard." Another NASA employee reiterated the importance of being prepared for negotiations with the Russians: "You have to be very familiar with the history of related agreements. We need some way to track these agreements so that we can better negotiate with the Russians."

(8) Relative equality or inequality of sexes:

In Russia, according to one Russian interviewed: "Men and women have specific roles in society. One is not better than the other is. They are just responsible for different things." However, from the American perspective, the Russians are where the United States was thirty to forty years ago in terms of women's status in the work place. One American described the situation in Russia: "Russian women have been raised to believe that they do not have value outside the context of a relationship with a man." Another NASA employee explained the inequality within the Russian organizations: "It is difficult for women to break into Russian organizations. There are few women who have

broken the threshold, but they are still not in management positions. They have a long way to go on gender equality."

Americans also believe that some Russians will try to take advantage of American women during negotiations. As one female NASA employee stated: "If there are difficulties in working with some of the Russians, then they tend to attribute it to the fact that they are negotiating with a woman as opposed to a personality conflict." Most of the problems come when negotiating with the older generation as they are not as receptive to change. Initially, most American women managers are not likely to be treated with the same amount of seriousness and respect as male managers would be treated. One female NASA employee explains how she has overcome this problem: "As we work with them and gain each other's respect, it becomes easier to work together more effectively."

From an individual perspective, American women astronauts that have worked with the Russian cosmonauts have not had any problems in working together on their missions. Both men and women want the mission to be successful and therefore strive to overcome all differences. The women astronauts also do not feel as if they have been treated any differently while they were in Russia for their training.

(9) Specific versus diffuse relationship:

The Russians are a more diffuse culture in that they want to establish relationships before becoming involved with the negotiation process. The Russians tend to be very social and enjoy entertaining Americans in traditional Russian cultural experiences. They want to develop a lasting relationship and friendship with the Americans that they work with. This open relationship often improves the negotiation process. However, for the Russians, building a relationship takes time so that they can become more comfortable

with new people and new ideas. A NASA employee describes the process of relationship building: "Russians have a standoff position at first with former enemies, as they are unsure of the relationship. There is a lack of trust, but once you get to know each other and establish a relationship then there is a much-improved working environment."

This focus on personal relationships also carries over into negotiations. The Russians work much better with the Americans when they are able to meet in a face-to-face setting. As one NASA employee stated: "The only way we get things done is by having Americans and Russians meet face-to-face. Without personal interaction, nothing will get done." The Russians want to be able to see and interact with their partners during negotiations. The Russians will also focus on personal discussions before they start negotiations as it helps to establish a personal relationship before the negotiations proceed.

(10) Neutral versus Emotional:

The Russians are an emotional culture. They openly express their emotions even more so than the Americans do. Many Americans are often shocked by the extreme displays of emotion by the Russians. As one American explained: "When the Russians have displays of emotional expression, many Americans don't know how to react. They panic and want to disappear from the negotiating table." In negotiations, it is not uncommon for a Russian to yell or visibly express their anger if they do not agree with a proposal. Some Americans view this display of emotion as a means for the Russians to exhibit power. When Americans respond to the Russians in an emotional manner, many Americans see that they can get a better response from the Russians. As one American

stated: "The Russians seem to respond better when you are emotional about an issue." As Americans adapt their style to the Russian style, they can see the negotiations improve.

Summary of national cultural differences:

As can be seen in the above-mentioned dimensions, the Americans, Japanese, and Russians are all different in relation to their cultural values. As international partners on the ISS, they must be aware of these differences and understand how the contrasting cultural values can affect the work on the ISS.

One issue that has not been discussed yet is the interaction of the Japanese and Russians. Although this report will not focus on the issue, it is an area of interest for potential further research. An interesting point in working with Japan and Russia is that Japan is still officially in a state of war against Russia. Therefore, it is extremely difficult for Russians to travel to Japan. The Japanese require the Russians to follow specific itineraries and they are not allowed to deviate from the set schedule. In addition, all movements throughout Japan are monitored. It is also difficult for Russians to obtain visas for travel to Japan. This conflict between Japan and Russia could cause considerable problems between the international partners. The United States will have to address the issue as the ISS leader.

The following table summarizes the differences in national cultural values as they relate to international space cooperation:

United States	Japan	Russia
Individualism	Collectivism	Collectivism
Precise time reckoning	Precise time reckoning	Loose time reckoning
Future oriented	Past/Future oriented	Past/Future oriented
Doing	Doing	Being
Youth	Age	Youth/Age
Informal	Formal	Formal/Informal
Competition	Cooperation	Competition
Relative equality of sexes	Relative inequality of sexes	Relative inequality of sexes
Specific	Diffuse	Diffuse
Emotional	Neutral	Emotional

Table Four: Comparative Value Orientations – United States, Japan, and Russia

The next chapter will discuss how these contrasting cultural values can affect the negotiation process as the United States, Japan, and Russia work to achieve the International Space Station.

CHAPTER V:

EFFECTS OF CONTRASTING CULTURAL VALUES

ON THE NEGOTIATION PROCESS

Chapter four presented the perceptions of cultural value differences between the United States, Japan, and Russia in the international space cooperation environment. To make this information more relevant to the wider business environment, it is necessary to assess the impact of these differences on the negotiation process. As Ferraro states, "[w]hen negotiating within our own culture, it is possible to operate effectively at the intuitive or unconscious level. However, when we leave our familiar cultural context and enter into international negotiations, the scene changes dramatically. There are no longer shared values, interests, goals, ethical principles, or cultural assumptions between negotiating parties. . . . Thus, we cannot negotiate across cultural lines without being conscious of the negotiating process. . . . By heightening our awareness of some of the potential pitfalls, we may become more effective international negotiators" (Ferraro, 1998, page 115). Therefore, it is critical to understand the cultural differences for international negotiations to be effective.

Adler defines negotiation as "the process in which at least two partners with different needs and viewpoints try to reach an agreement on matters of mutual interest" (Adler, 1997, page 191). In international space cooperation, negotiations are conducted between the international partners to try and reach an agreement over an issue that is of mutual interest to the ISS. For example, negotiations are conducted to determine who is responsible for different segments of International Space Station (ISS) training. Although, the Russians or Japanese may have a different view than the United States,

they work together to come to an agreement. In the process of coming to agreement on an issue, there are several cultural factors that can come into play as each country has different negotiating styles. This chapter will assess how the cultural differences and negotiating styles impact negotiations between the international partners. After the negotiation process has been described, this chapter will also address some of the cultural considerations for American personnel as they negotiate with Russia and Japan.

The United States and Russia

One issue that surfaces in negotiations with Russia is the language for ISS training. The original agreement between the international partners states that the ISS language is English. However, Russia wants to conduct their training with astronauts and cosmonauts in Russian. This request appears to be an attempt to display some sense of control and power on behalf of the Russian Space Agency (RSA). The Russians feel the need to display power to reinforce their experience in space and to emphasize their former role as a superpower. It is difficult for the Russians to act in a subordinate position to the United States. However, NASA does not believe it is necessary for astronauts to train in Russian since the ISS is going to be operated in English. Therefore, NASA stands firm that interpreters can be used for crew training to accommodate Russian instructors. Until NASA and RSA resolve the issue, interpreters will remain the primary means of communication.

For this reason, interpreters play an important role in the negotiation process with Russia. Although an interpreter is supposed to be neutral, there is the possibility for the interpreter to act in a non-neutral capacity. The interpreter may engage in lengthy side

conversations attempting to mediate misunderstandings that arise from cultural as well as language misunderstandings (Trompenaars, 1993, page 57). Even with an interpreter involved, it can still be difficult to communicate during negotiations. Thus, communication as well as cultural factors must be considered when negotiations occur between the United States and Russia.

Adler presented some of the key attributes of the Russian negotiation style in the comparison table of national styles of persuasion (see table one). However, after the interviews were completed, it became obvious that there were some critical differences on the Russian side of the table. Glen et al. suggests that the Russians do not generally expect to develop a continuing relationship with the negotiating partners and therefore see little need for relationship building. However, this aspect of Russian culture is different within the space cooperation environment. NASA personnel have discussed the strong emphasis that the Russians place on relationships. In addition, as Russians and Americans develop relationships, their interaction and cooperation improves. One reason for this difference as compared to the table is that the space environment is more cooperative. The Russians know that they will work with many of the same people for an extended period of time, and therefore recognize the need to build continuing relationships in order to advance their own interests.

Another significant difference is that according to Glen et al., Russians tend to make few concessions and start with extreme positions. However, as discussed with many of the NASA respondents, the Russians will sacrifice short-term issues to attain long term objectives. One reason for this difference may be that Russians recognize that in order to achieve their long term space objectives with limited economic resources, they

will need to sacrifice some of their short-term objectives. These are two critical differences that must be understood when working with the Russians in space cooperation. The table also shows some similarities with the interview results. For example, the table states that the Russians may ignore deadlines. This lack of adherence to schedules is consistent with NASA personnel experience in working with the Russians. Another key issue about the Russian culture that is relevant to negotiations is their perceived lack of authority. Russians will frequently claim that they need to check back with headquarters prior to making a decision due to their limited authority.

The lack of authority issue is one of the main sources of contention as it surfaces quite often in negotiations between NASA and Russia. Russia has three main agencies that are involved in space activities. The Russian Space Agency (RSA) is the headquarters for space activities. The Gagarin Cosmonaut Training Center (GCTC) is the military side of space activities and is primarily responsible for cosmonaut training. The Rocket Science Corporation (RSC) is made up of the space contractors and engineers. NASA conducts most of its training negotiations directly with GCTC. However, the GCTC negotiators often respond that they can not provide information as they have not had time to coordinate with RSC or RSA. Many of the NASA personnel believe that GCTC uses this "lack of authority" as a means to postpone an issue, but really could provide feedback if they wanted to.

However, this conflict could just be a result of a lack of understanding cultural differences. According to a report from the NASA Advisory Council, Russia has a highly centralized authority and decision-making structure, and therefore Russians may not feel comfortable to make decisions without conferring with their supervisors. This lack of

authority is often difficult for Americans to understand, as it is different from the American structure. As one NASA employee explained: "There are no middle-management decisions in Russia. Only top level management can make decisions, and if the decision involves money then it must go to the highest level of authority." The discontinuity between the American and Russian organizations has caused considerable conflict during negotiations.

The United States and Japan

Japan is an original ISS partner, and therefore agrees that the ISS language is English. Although Japanese personnel that work on the ISS are required to speak English, there can still be difficulty in understanding one another at times. Therefore, ineffective communication as well as cultural factors can inhibit the negotiation process.

The negotiation style table presented by Adler (see table two) explains the Japanese negotiation style. After conducting interviews and evaluating the results, it is apparent that the table is consistent with the American perceptions of Japanese culture. Decision-making is usually done in a group by consensus and the Japanese put the needs of the group before the needs of an individual. In the negotiations at NASA, the Japanese will confer with the group when a decision is to be made, and this can often make the negotiation process lengthier.

Another element of the Japanese negotiating style is that the Japanese hide their emotions and are not argumentative. To ease any tensions that may arise, the Japanese will present alternative proposals that meet both parties needs. Negotiations with the Japanese have been fairly efficient at NASA despite the cultural differences. In the most

recent negotiation with NASDA, there were no major conflicts and when conflicts arose, they were dealt with efficiently by both parties on a cooperative level. NASA and NASDA work well together, and can find a solution suitable to both parties through discussion. The negotiation process tends to move quickly and smoothly. Both Americans and Japanese see this success as a result of their strong relationship and experience in working together. Another reason for the successful negotiations is that there is a positive information exchange between the Japanese and Americans. For example, NASDA presents their requirements, and then, NASA follows with a response of their perception of NASDA's requirements. This practice helps to clarify that everyone understands each other's needs and interests.

Cultural Considerations

Since the United States will continue to work with the Russians and Japanese in the space environment, the Americans must learn how to improve their cross-cultural interaction. In addition, there will be several negotiations before the ISS is complete and understanding the cultural differences is essential to improving the negotiation process. In working with the Russians, the Americans should remember that Russia has a group-oriented culture, and therefore people may not be able to make individual decisions. Americans should try and be patient in waiting for the Russians to make decisions. Also, there should be some sense of compromise between the Russians and Americans regarding their negotiation schedule and agenda. The current practice of setting agendas without strict time schedules may be a compromise for both monochronic and polychronic cultures. Specifically in negotiations, Americans should not allow

themselves to be taken advantage of as a result of their focus on schedule adherence. Americans must recognize that Russians may take advantage of this aspect of American culture if NASA personnel are not careful about their behavior.

It is also necessary for Americans to recognize that Russian's focus on the people involved and that the objectives are secondary. Americans should try to take the time to get to know the Russians that they work with on a personal level as the Russians place a greater importance on relationship building. The Americans also need to be prepared for emotional negotiations with the Russians and should not be overly concerned with this difference in negotiation style. American women must also be ready to face some problems in negotiations with the Russians. To help prevent these problems, women should ensure that they are prepared and find out as much as possible about the Russians they will be working with. By learning to work with these cultural differences, NASA can improve its negotiations with Russia.

NASA must also understand how cultural differences can affect negotiations with NASDA. Since the Japanese are group-oriented, the Americans must be prepared to spend more time in the decision-making portion of negotiations. Americans should also be prepared to face a more formal process when negotiations are conducted in Japan. There may be less joking and telling of personal stories in the Japanese negotiations. It is important for the Americans to understand that the Japanese would be uncomfortable in making a member of their group look bad in front of the other members. Therefore, if something goes wrong, it would be unlikely for the Japanese to place blame on an individual. Americans should also recognize that the Japanese place a strong importance on getting to know their partners before negotiations begin. Again, this sense of

relationship building may extend the length of negotiations. The Japanese may also show little emotion in negotiations, and thus may be more difficult to negotiate with. Americans must be prepared to face these differences if negotiations are to be effective.

Although the United States, Japan, and Russia all have different negotiation styles, they can still be effective in making agreements. However, negotiators must have an understanding of cultural differences and how these differences can affect the negotiation process. Once the cultural analysis has been applied to negotiations it is possible to make recommendations for improvement.

CHAPTER VI:

RECOMMENDATIONS

Introduction

Adler describes the problems and benefits associated with international negotiations: "Because people from different cultures perceive, interpret, and evaluate the world differently, communicating needs and interests in ways that people from other cultures will understand becomes more difficult, as does fully understanding their words and meanings. Although communicating becomes more difficult, creating mutually beneficial options often becomes easier. When negotiators overcome communication barriers, identifying win-win situations – mutually beneficial solutions in which both parties gain – becomes easier" (Adler, 1997, page 194).

Based on the analysis of interviews and observations, this report presents recommendations to help improve the negotiation process between the international partners. First, NASA should initiate a synergistic approach to negotiations. The synergistic approach involves cross-cultural training, relationship building, and positive information exchange. These elements will help lead the international partners to agreements of mutual benefit for both countries. The final recommendation includes the use of a database to provide information about previous agreements during the negotiation process. The recommendation for this database is based on suggestions from NASA personnel as well as from the negotiating styles of the Japanese and Russians. This database will meet the cultural needs of the international partners and will help to make the negotiation process more efficient. By improving the negotiation process

between the international partners, NASA will be able to improve the overall cooperation and interaction with the international partners.

Recommendations for Negotiations: Synergistic Approach

The book <u>Managing Cultural Synergy</u> as discussed by Adler, suggests that through cultural synergy in international cooperation "we can go beyond awareness of our own cultural heritage to produce something greater by cooperation and collaboration. Cultural synergy builds upon similarities and fuses differences resulting in more effective human activities and systems. The very diversity of people can be utilized to enhance problem solving by combined action. Those in international management have unique opportunities to foster synergy on a global basis" (Adler, 1997, page 107). This cultural synergy relates to the negotiation process and is a means of improving the negotiation process at NASA.

The synergistic approach to negotiation, as described by Adler, involves six steps (Adler, 1997, page 202):

1. Preparation

2. Relationship Building

3. Information Exchange

4. Inventing Options for Mutual Gain Appropriate to Both Cultures

5. Choice of Best Options

6. Agreement

These steps should be readily applied at NASA to help ensure more effective negotiation between the international partners.

(1) Preparation:

In the preparation step, NASA personnel need to prepare and practice for negotiations so that they have a unified strategy and approach. In preparing for negotiations, NASA personnel should decide on specific responsibilities for those involved. As Adler states, "[h]aving some team members primarily responsible for listening to conversations and observing nonverbal cues and other members primarily responsible for conducting substantive discussions has proven to be an extremely effective strategy" (Adler, 1997, page 199).They should also discuss specific approaches for each issue being negotiated. They need to understand the needs of all of the people involved and which issues are most critical to specific aspects of the ISS.

In addition, all NASA personnel involved with negotiations should attend cross-cultural training. Currently, all personnel coming into the NASA organization are required to take cross-cultural communication training. However, this training should include the dimensions discussed in this report, as these dimensions are most relevant to international space cooperation. The dimensions should be related to specific examples within international space cooperation to help people understand how theory relates to practice. This type of cross-cultural training would help to make people better prepared for negotiations so that they can relate to the other side and know where they are coming from. In addition, it will take less time to come to an agreement and less tension will be present between the partners. In addition, it would be helpful to have a cultural consultant available to review the negotiation process between the international partners and suggest recommendations for improvement.

Cross-cultural training should also be broken down into country specific training. People who have had experience in working with the country involved should teach these classes since they have more personal experiences to share. Another option for further cultural training would be to establish discussion groups between Americans and Russians or Americans and Japanese. Discussion groups would allow members from each culture to share experiences and ask questions about value differences.

Since the cross-cultural communication classes only occur on certain dates, there is often the problem that personnel interact with Russian or Japanese personnel before actually having the opportunity to attend the classes. One NASA astronaut explained the importance of cross-cultural training: "Cross-cultural training is effective especially in the initial stages of interaction. It helps to have a cultural awareness to break through the initial barriers and to accommodate the cultural differences." If NASA personnel do not accomplish this training before they interact with different cultures, then the initial interaction can be awkward and have the potential to result in a negative first impression. Thus, cross-cultural training is an essential requirement for all personnel before working with the international partners.

(2) Relationship Building:

The next step involves relationship building. The best way for NASA to improve its relationship with both Russia and Japan is to continue to establish multicultural teams through exchange programs. NASA personnel in Russia and Japan will have a better understanding of cultural as well as organizational issues in these countries. Americans can work closely with the Japanese or Russians to find out exactly what they want, and then they can relate it to American personnel in the United States. One NASA employee

explained this approach: "One method that has been extremely beneficial is having former NASA training personnel working with subcontractors for the Japanese space agency. These personnel work closely with the Japanese to find out exactly what they want and then relate it to NASA personnel on an 'American level.' This makes the interface with NASA much easier as we know exactly what they want."

Also, Russian and Japanese personnel at NASA will enable Japan and Russia to have a better understanding of NASA issues. According to NASA personnel, it has been effective having Russians and Japanese personnel working at NASA in the United States. According to a NASA employee: "These personnel are useful references that can help to provide an explanation if Americans have questions about cultural differences."

According to Adler, multicultural teams have a higher potential for productivity, but also frequently experience greater difficulty in integrating (Adler, 1997, page 131). Despite the risk of poor integration, it is still an advantage to have multicultural teams so that they can learn to work together on the team level. In addition, the longer that people work together, they will learn more about cultural differences and their understanding of other cultures will improve. This enhanced understanding will eventually result in improved productivity. As people learn more about one another, the interaction and cooperation with the international partners will improve.

Social activities can also help to build relationships and create a better working atmosphere. Once people get to know each other, it is easier to communicate and work together. In addition, face-to-face meetings are most effective, as this is where most communication takes place. Both the Japanese and Russians function better in this type of interaction as they have the opportunity to build personal relationships.

Another key factor in relationship building is language training. Even though the language of the ISS is English, it would be helpful for Americans to know some Japanese and Russian if they are going to work with people from these countries. It may not be the primary means of communication, but at least it shows that Americans are making an effort to better understand other cultures. One NASA employee explained the importance of language training: "Language training is extremely useful. When Russians or Japanese see that you are taking the time to try and speak their language they have a lot of respect for that. Having a common language, even if only a few words, can help to improve relations and make negotiations easier."

(3) Information Exchange

The third step involves equal information exchange between the partners. At NASA, this has been a source of concern if NASA personnel believe that American astronauts do not have access to the same information as Russian or Japanese astronauts. The reverse also applies. There is still an issue of trust between the partners and it is especially difficult to exchange highly sensitive technical information. By ensuring equal information exchange between all parties, trust and relationships will improve. However, it is important to understand that gaining trust takes time. Sharing information allows everyone to benefit with the potential to progress more quickly in achieving the ISS.

In sharing information during negotiations, both parties should talk about each other's interests. They need to discuss what they want from the negotiation. By being open and sharing information, it is easier to suggest win-win proposals. This sharing of information will also help to build trust between the international partners.

(4) Inventing Options for Mutual Gain Appropriate to Both Cultures

The fourth step in the synergistic approach includes inventing a wide variety of options for mutual gain appropriate to both cultures. Each participant should strive to propose win-win agreements, which can only be accomplished with an understanding of each party's interests. They need to identify areas of similarity and difference and then create new options based on the ultimate goal of achieving the ISS. Japan is effective in following this approach. If the Japanese see a potential conflict over an issue, they will defer the agreement until a later date. They will then take the time to come up with a proposal that meets both parties needs and objectives. The partners also need to present alternate proposals if they disagree with the current agreement under discussion. This focus on mutual gain will assist in coming to an agreement that meets both parties' mutual interest.

(5) Choice of Best Options

In choosing the best option, each partner may have to make compromises or concessions if necessary. The involved parties need to respect the differences in negotiating styles and adjust accordingly to ensure more effective negotiations. When making a final decision, each country should use criteria that are appropriate to both cultures so that they can achieve win-win agreements

(6) Agreement

The final step in this process is the actual agreement. Another benefit of having NASA personnel in Russia and Japan and of having Russian and Japanese personnel at NASA, is that they can be involved with negotiations. Thus, they are able to help the

process go more smoothly and can calm any tensions that may rise by having a better understanding of both perspectives.

It is extremely important that all parties understand the agreement. One issue is that the agreement may have to be translated and both parties should be comfortable with the agreement once it is translated. In addition, it is also necessary to ensure that the current agreement does not contradict a previous agreement. Therefore, the negotiating parties should have easy access to previous agreements related to the similar topic.

Recommendations for Negotiations: Database

To ensure that all partners have access to agreements, there needs to be a consistent method of tracking agreements made in ISS negotiations. This issue surfaced in several of the interviews as a complaint with the current negotiation process. Currently, there is no standardized process of tracking the agreements made by the international partners. The problem with international negotiations is that every member has their own means of tracking agreements as a result of "the way things are done" within their culture. As observed during the negotiations, this can cause significant problems between the international partners, as all parties may not be completely familiar with a previous agreement on a similar topic. This lack of a common understanding creates the potential for conflict, which can affect the overall relations between the international partners.

The International Training & Integration Office (ITIO) wants to establish a consistent method of tracking agreements between the international partners to reduce this potential for conflict. By creating a database based on cultural analysis, there will be

a common system for all of the international partners. The database will improve negotiations with Russia since the Russians quote agreements on a regular basis. NASA will be better prepared if they can reference this database when in a negotiation. Also, Japan has a need to know about specific details regarding previous agreements when they are in negotiations. The database will allow the Japanese to refer to specific details in a timely manner. This database will eventually be put on-line and on a CD-ROM so that all partners can access the database at any time and from any location.

The database will help to improve the communication and understanding among the international partners. The database will provide the negotiator and other interested parties with the information necessary to continue with negotiations with full knowledge and a common understanding of previous negotiations. The involved parties must be cognizant of agreements that have been made in the past so that they do not enter into an agreement that counters a previous agreement. While implementing the results of negotiations, the agreements can be referenced and checked to ensure that all parties are operating within the bounds of the current agreements.

The database will be composed of all of the agreements made between the international partners regarding the ISS. For example, an agreement between the United States and Russia is to ensure that Russia's space station computers will include panels that are both in Russian and English for the ISS. The database would track this agreement so that it could be referenced during other ISS negotiations about space station computers. Any person involved in the negotiation process will be able to access the database and search all of the agreements based on key variables. These search variables include:

- keywords in the agreement, such as "language" or "training"

- signatures of the personnel who signed the document

- attendees at the negotiation

- date of the negotiation

- location of the negotiation

- type of negotiation

In addition, the database allows for new entry of agreements in a timely and effective manner so that the database can be continually updated. Thus, the database will allow for effective and efficient tracking of international agreements. The results will clearly assist NASA in limiting the potential for conflict while gaining benefits through international cooperation. The database structure as well as an example search can be found in appendix two.

By implementing these recommendations, NASA can improve its cooperation and interaction with the international partners. These recommendations not only apply to working with Japan and Russia but also to the other international partners. In addition, these recommendations are useful for the wider business environment when working on an international level.

CONCLUSION

To improve interaction and cooperation between the international partners, it is first necessary to understand the cultural differences. These contrasts in values can have a significant impact on the outcome of cooperative activities, such as the completion of the International Space Station. The ISS is the largest and most complex international cooperative effort of its time. The management of the ISS will set the example for future cooperative activities in the international environment. As the world moves toward globalization, it will become increasingly important for businesses to know how to work together on an international level. International cooperation will become essential if individual nations are to achieve significant milestones in the business world.

This report focused on the cultural differences of the three largest single contributing nations of the ISS. These countries also have some of the most significant cultural differences. These contrasting cultural values are displayed below:

United States	Japan	Russia
Individualism	Collectivism	Collectivism
Precise time reckoning	Precise time reckoning	Loose time reckoning
Future oriented	Past/Future oriented	Past/Future oriented
Doing	Doing	Being
Youth	Age	Youth/Age
Informal	Formal	Formal/Informal
Competition	Cooperation	Competition
Relative equality of sexes	Relative inequality of sexes	Relative inequality of sexes
Specific	Diffuse	Diffuse
Emotional	Neutral	Emotional

Table Five: Summary of Cultural Value Dimensions

Although some of these differences are fairly significant, it is still possible for the international partners to work together to successfully complete the ISS. To do so, NASA must set the example as the leader of the ISS. Based on the analysis of the cultural

differences, NASA should implement a synergistic approach to negotiations. This approach will focus on preparation in terms of cross-cultural training. This training is essential to the success of international activities. Also, this approach focuses on relationship building, which is important to diffuse countries, such as Russia and Japan. These countries place a high importance on working together and getting to know their partners before they begin business. This approach to negotiations also includes information exchange between partners. Information exchange is essential to establishing trust between the partners and it provides a greater possibility for win-win agreements. A synergistic negotiation process is essential to international negotiations as it helps partners to work together in an open and trusting environment.

The other recommendation significant to improving the negotiation process with the international partners is the establishment of an agreement database. This database will be extremely useful to meet the needs of all of the international partners. It will allow personnel involved with negotiations to refer to an agreement in a timely manner. The Russians place a lot of emphasis on referring to previous agreements and the Japanese have a strong need to know the specific details of previous agreements. If NASA is going to negotiate successfully with either of these two countries then it must have this database readily available to track agreements. If implemented, these recommendations will significantly improve the interaction and cooperation between the international partners.

It is also important for people to understand that it takes time to improve relations between people of different cultures. We need to be patient and allow for time to work problems out. We must recognize cultural differences and understand how these differences can affect interaction, and then be prepared to adapt our practices

accordingly. However, we must still remember to maintain our own cultures while working with people from other countries.

Although this project was conducted from a space environment perspective, its lessons are still relevant to the wider business environment. By understanding our own culture and recognizing how it differs from other cultures, we are one step closer to becoming better partners in the international environment. "One has to recognize that whatever the future may hold, countries and people differ . . . in their approach to life and their ways of living and thinking. In order to understand them, we have to understand their way of life and their approach" (Jawaharlan Nehru, quoted in Adler, 1997, page 67).

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APPENDIX ONE:

INTERVIEW STRUCTURE

CROSS-CULTURAL INTERACTION (INTERVIEW)

Name _____ Title _____

- In what capacity have you worked with the Japanese/Russians? Length of time involved?

- What are the main cultural differences that you have experienced in working with the Japanese/Russians?

- Do you have any suggestions that would help to improve interaction and cooperation with Japan/Russia?

APPENDIX TWO:

DATABASE STRUCTURE
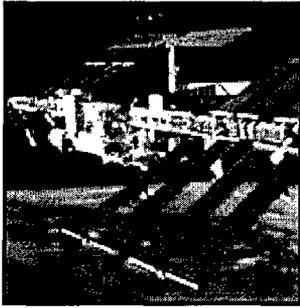
WELCOME TO THE INTERNATIONAL PARTNER AGREEMENTS DATABASE

WHAT WOULD YOU LIKE TO DO?

Administration Only:

Enter New Agreement

Check Available Search Words:

View Available Keywords

View Available Meeting Names

View Available Signature/Attendee Names

Exit Start-Up Form

Search by Attendee

Search by Document Date

Search by Signature

Search by Keyword

Search by Multiple Keywords

Search by Meeting Name, Location and Date

Search by Meeting Name and Location

Search by Location and Keyword

Search by Keyword and Signature

Language

- ◉ English
- ○ Japanese
- ○ Russian

Enter New Agreement Data

Select the name of the meeting　　Add New Meeting Name to Choices

Enter the date (day-month-year)
For example: 20-Jul-69

Joint MultiSegment Training Working Group

23-Jun-99

Meeting location

Moscow

Meeting format

Face-to-Face

Type of document

Protocol

Location of the document

On-Line

Enter the details of the agreement

RSC-E agreed that from now on, all JMST cyclograms will show SGMT, MET, accurate simulated communication passes, and accurate lighting.

Select the first signature on the document

Reagan

Select the second signature on the document

Poffinbarger

Select the first keyword for the agreement

RSC-Energia

Select the second keyword for the agreement

JMST

Select the third keyword for the agreement

Select the fourth keyword for the agreement

Select the third signature on the document

Abramsky

Select the fourth signature on the document

Bugrova

Select the fifth signature on the document

Gulakov

Add New Participant to Choices

Select attendee #1

Abramsky

Select attendee #2

Bugrova

Select attendee #3

Chubutkin

Select attendee #4

Gulakov

Select attendee #5

Poffinbarger

Select attendee #6

Rader

Select attendee #7

Reagan

Select attendee #8

Sheloukhanov

Select attendee #9

Select attendee #10

Select attendee #11

Select attendee #12

Search by Multiple Keywords

Date	Meeting Name	Meeting Location	Agreement	Document Location
23-Jun-99	Joint MultiSegment Training Work	Moscow	It was agreed that details associated with the malfunction cases and the JMST Scripts will be worked via telecons and fax exchanges. These telecons will occur on a bi-weekly basis at 7:30 am local Houston time/4:30 pm local Moscow time on loop 15. The next telecon will be on July 8, 1999. At some appropriate point, a joint decision will be made to hold these telecons weekly.	On-Line
23-Jun-99	Joint MultiSegment Training Work	Moscow	The malfunction times shown in the attachments are approximate times. The decision to introduce each malfunction and the appropriate time to do so will be jointly decided by the Sim Sup, STL, and Moscow Sup. These decisions will be made real-time during the simulation.	On-Line
23-Jun-99	Joint MultiSegment Training Work	Moscow	RSC-E agreed to provide required inputs to the cases presented, and any additional malfunction cases, approximately one month prior to each simulation. Any new malfunction cases will be provided in a similar format.	On-Line
23-Jun-99	Joint MultiSegment Training Work	Moscow	RSC-E generally agreed with the malfunction cases presented by NASA. Several changes were recommended based on the experienc from flight 2A.1, which were accepted by NASA. These changes have either been incorporated in the attachments or will be incorporated in the next revision.	On-Line

International Training Integration Office

International Partner
Agreements Database

USER'S GUIDE

August 27, 1999

Table of Contents

Section 1: Introduction

1.1 Issue

Many parties at NASA make agreements with the International Partners. These agreements range from assigned crew responsibilities to the location of smoke and fire detectors in the simulators. During negotiations with the International Partners, it is vital that the involved parties be cognizant of the agreements that have been made in the past. Negotiators should be aware of the impact of changing an agreement when the original agreeing parties are not present or entering into an agreement that counters previous agreements. Negotiators should also know whether or not their organization has fulfilled previous agreements.

In many instances during negotiations, previous agreements are quoted. If all parties are not completely aware of all the agreements related to the topic, then the potential for conflict will exist. Additionally, prior to negotiations, personnel should be able to prepare for the event by reviewing all agreements related to a particular topic.

1.2 Solution

The International Partner Agreements Database will provide the negotiator and other interested parties with the information necessary to continue with negotiations with full knowledge of previous negotiations. Also, while implementing the results of negotiations, the agreements can be referenced and checked to ensure that all parties are operating within the bounds of the current understandings.

The Agreements Database can be searched by several different variables including:

- Attendee
- Document Date
- Signature
- Keyword
- Multiple Keywords

- Meeting Name, Location, and Date
- Meeting Name and Location
- Location and Keyword
- Keyword and Signature

When the search is complete, the database generates a report of all the agreements that relate to the specified variable. The report will provide the meeting date, meeting name, meeting location, agreement details, and location of the agreement (on-line or hard copy at DT). These reports will allow the negotiators to prepare for negotiations as well as to have timely access to agreements during the negotiation process.

Section 2: Database Design

2.1 Tables

The International Partner Agreements Database is developed using Microsoft Access. The database uses five tables to store the information necessary for processing the agreements in the database. These tables include the Documents Table, the Participants Table, the Keywords Table, the Meeting Name Table, and the Company Table. The contents of the tables are shown below:
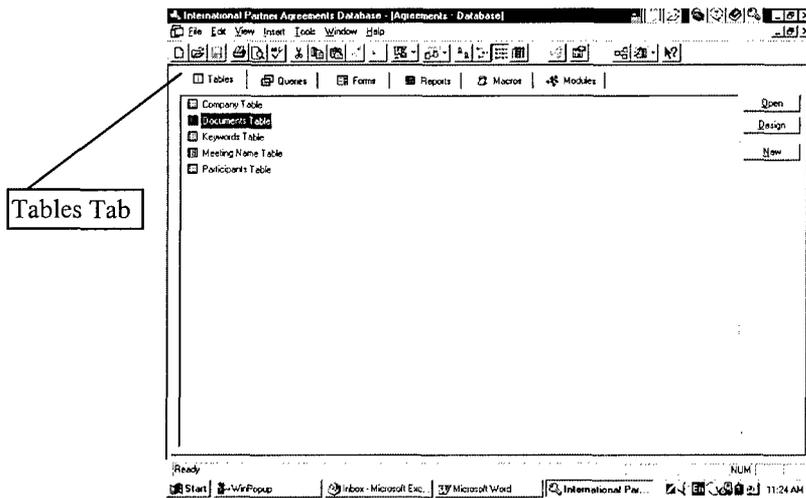

Diagram 1

The Documents Table holds the primary information for the database. All of the key information can be found in this table and it is the basis for all searches conducted on the database. To access the Documents Table for administration purposes, exit the start-up form, select the tables tab (see Diagram 1) and select the Documents Table from the menu.

Documents Table
Meeting Name
Meeting Location
Document Date
Meeting Format (Telecon, Videocon, Face-to-Face)
Document Type (Minutes, Action Items, Protocol)
Agreement
Keywords
Signatures
Attendees
Document Location (On-Line or Hard Copy)

The Participants Table is used to store signature and attendee names in the database. To access the Participants Table for administration purposes, exit the start-up form, select the tables tab (see Diagram 1) and select the Participants Table from the menu.

Participants Table
Last Name
First Name
Title
Company
Country

The Keywords Table is used to store keywords in the database. To access the Keywords Table for administration purposes, exit the start-up form, select the tables tab (see Diagram 1), and select the Keywords Table from the menu.

Keywords Table
Keyword

The Meeting Names Table is used to store names of meetings in the database. To access the Meeting Names Table for administration purposes, exit the start-up form, select the tables tab (see Diagram 1) and select the Meeting Name Table from the menu.

Meeting Name Table
Meeting Name

The Company Table is used to store company names in the database. These names are then included on the Participants Entry Form when adding new participants to the Participants Table. To access the Company Table for administration purposes, exit the start-up form, select the tables tab (see Diagram 1) and select the Company Table from the menu.

Company Table
Company

2.2 Queries

The database uses queries for two primary reasons: (1) to compile the list of available search words in an alphabetical format, and (2) to conduct searches based on the variables decided by the user. Queries can be viewed by selecting a specific query from the Query menu. To access the Query Menu from the start-up form, the user must first exit the form, and then select the Queries tab (see Diagram 2 below). However, the best means of viewing the query results is in the report format. Therefore, all queries are associated with reports to allow for convenient user access.
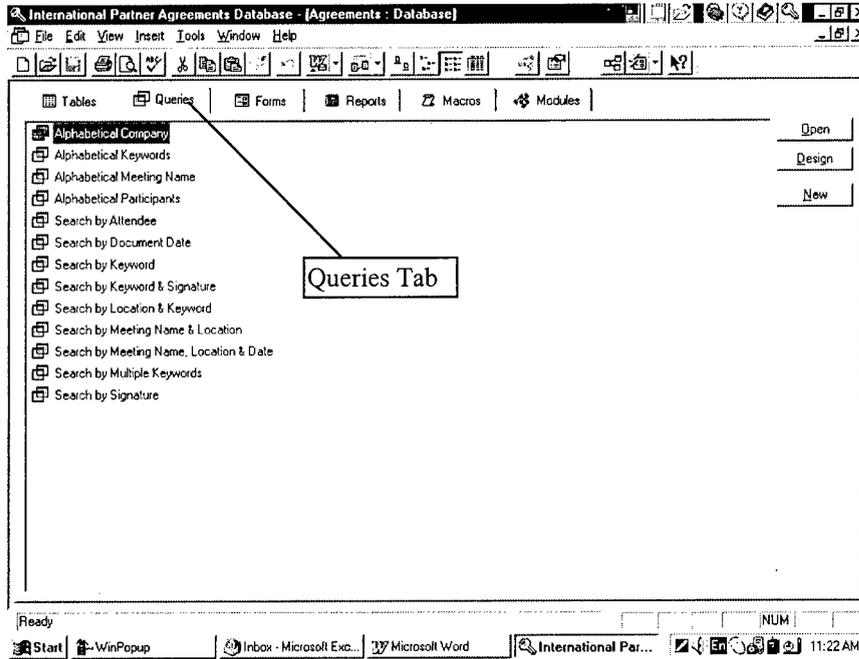
Diagram 2

2.3 Forms

This database uses forms to allow for timely and convenient use. When the user selects the database, the Start-Up Form will automatically be loaded onto the screen. From this screen, the user can enter new agreement data or generate searches and reports on specific agreements.
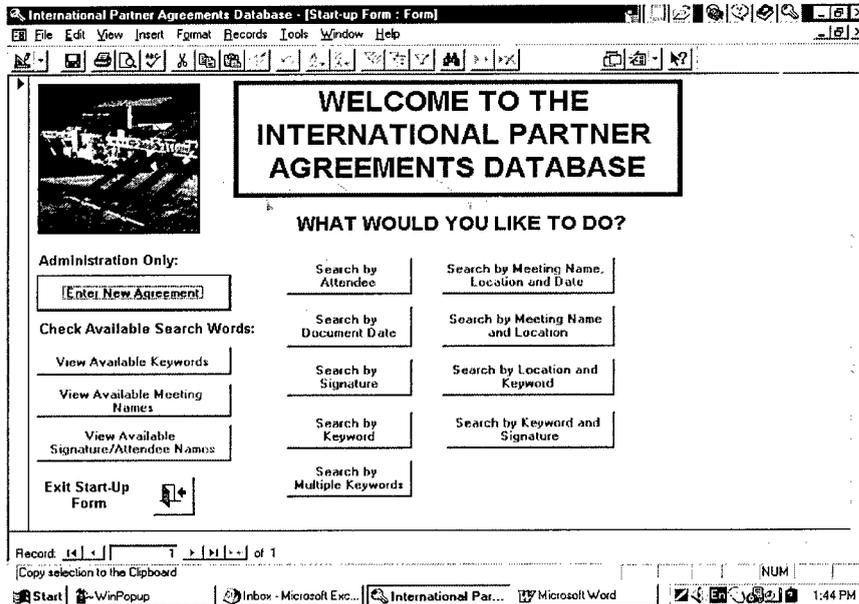

Diagram 3

The following forms are also available to enter data:

- Enter New Agreement Data

  This form can be accessed from the Start-Up form by selecting the "Enter New Agreement" button. It is the primary means of entering data into the database. When finished entering data, select the exit form button. A picture of this form with detailed instructions can be found in the User Interface section.

- Enter New Company Names

  The best method of adding new company names is to use the Enter New Company Names Form. To access this form, exit the Start-Up form, select the forms tab, and select the Enter New Company Names Form. When company names are entered on this form, they will appear on the pull-down list associated with the participants entry form. When finished entering data, select the exit form button.
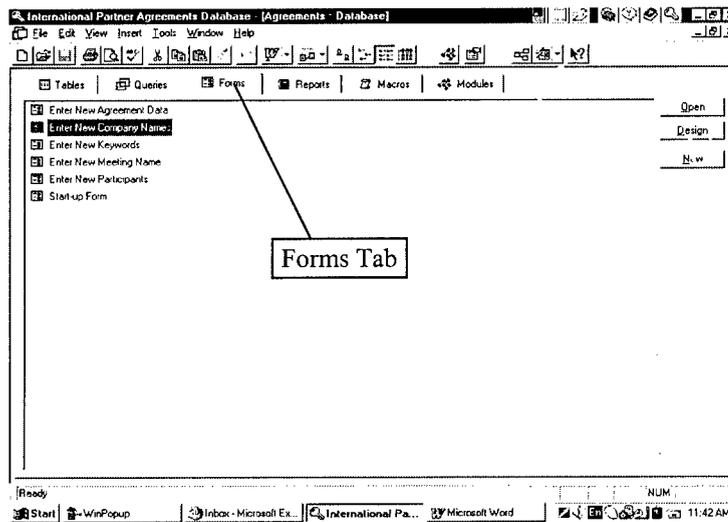
Diagram 4
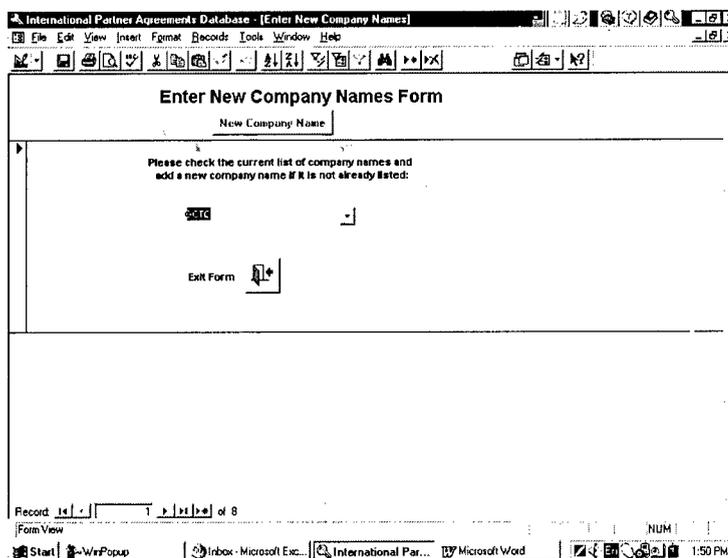
Diagram 5

- Enter New Keywords

  The best method of adding new keywords is to use the Enter New Keywords Form. To access this form, exit the Start-Up form, select the forms tab (see Diagram 4), and select the Enter New Keywords Form. When keywords are entered on this form, they will be available for selection on the pull-down list associated with the agreements entry form. When finished entering data, select the exit form button.

Diagram 6

- Enter New Meeting Name

  The best method of adding new meeting names is to use the Enter New Meeting Name Form. To access this form, exit the Start-Up form, select the forms tab (see Diagram 4), and select the Enter New Meeting Name Form. When meeting names are added to this form, they will automatically be available on the meeting names pull-down list associated with the agreements entry form. When finished entering data, select the exit form button.

Diagram 7

- Enter New Participant

  The best method of adding new participants is to use the Enter New Participants Form. To access this form, exit the Start-Up form, select the forms tab (see Diagram 4) and select the Enter New Participants Form. When participants are added to this form, then their names will be available as signatures or attendees on the agreements entry form. When finished entering data, select the exit form button.

Diagram 8

2.4 Reports

This database uses reports as the primary means of providing results to the user. Reports are generated for each search conducted by the user. In addition, there are reports that allow the user to view the available search words. A discussion of report generation as well as report examples can be found in the user interface section.

2.5 Macros

There is only one macro in use for this database. This macro is associated with the Enter New Agreement Data form and the "New Agreement - Same Meeting" button, located at the top of the form. This macro clears the agreement and the keywords from the form when the button is selected by the user. This action allows the user to enter a new agreement from the same document without re-entering all of the associated information.

Section 3: User Interface

3.1   Data Entry

All data entry can be accomplished from the Enter New Agreement Data form. This form allows the user to enter agreement data into the database.

- From the Start-Up form, select the "Enter New Agreement" button. This action will open the Enter New Agreement Data form. The top half of this form is displayed below. When opened, this form will display the first agreement in the database. To view other agreements, use the arrows located on the toolbar at the bottom left of the Access window.

Diagram 9

Control Arrows

- To add a new agreement, select the "New Agreement - New Meeting" button at the top of the form. This will clear all of the data and allow the user to enter a new agreement.

- To add a new agreement that comes from the same meeting as currently displayed in the form, select the "New Agreement - Same Meeting" button at the top of the screen. This action is particularly useful when adding multiple agreements from the same document. This action will only clear the agreement box and the keyword boxes. All other data will remain the same.

The user can start at any point on the form. Most of the boxes are also associated with pull down lists so that the user does not have to retype the information. If the item is not available on the

list, then the user may type the item in. There is also the option to add new items to the lists for meeting names and participants, which are used for signatures and attendees. Once the information is added to the database, it will be available as a selection from the pull down list.

- To add a new meeting name from the Enter New Agreement Data form, select the "Add New Meeting Name to Choices" button. This action will open the Enter New Meeting Name Form (see Diagram 7). Once the meeting name is added to the list, it will appear in the pull-down list of choices. Once the data has been added to the form, select the exit door button to close the form. The data will automatically be saved to the database.

- To add a new participant from the Enter New Agreement Data form, select the "Add New Participants to Choices" button (displayed in the diagram below). This action will open the Enter New Participants Form (see Diagram 8). Once the participant is added to the list, their last name will appear in the pull-down list of choices for signatures and attendees. The Enter New Participants Form also has other fields, including first name, title, company, and country. These fields can be left blank if unknown, but are useful to find out more information about the participants. Once the data has been added to the form, select the exit door button to close the form. The data will automatically be saved to the database. The bottom half of the Enter New Agreement Data form is displayed below:

Diagram 10

When finished entering all of the agreements into the database, select the exit door button to exit the form. This action will return the user to the Start-up form.

3.2 Search Options

There are several key factors to remember when conducting searches on this database. When typing in search variables they must match the available search words with the exception that the capitalization does not have to match. To assist with this process, it is recommended to look at the available search words prior to conducting a search. To check the available search words use the options available on the Start-Up form. If the report comes up blank, then there may be a mistake with the words entered into the search option.
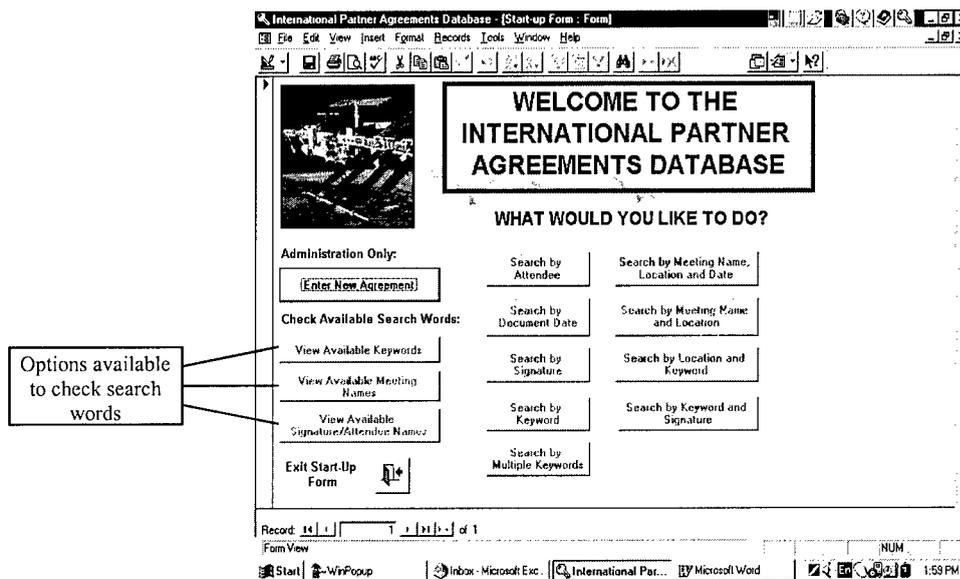

Diagram 11

There are several different search options available. Each option requires input from the user:

- Search by Attendee: Enter the last name of the attendee

- Search by Document Date: Enter document date (ie: 20-Jul-69)

- Search by Signature: Enter last name of signature

- Search by Keyword: Enter keyword #1

- Search by Multiple Keywords: Enter keyword #1, Enter keyword #2

- Search by Meeting Name, Location, and Date: Enter meeting name, Enter meeting location, Enter document date (ie: 20-Jul-69)

- Search by Meeting Name and Location: Enter meeting name, Enter meeting location

- Search by Location and Keyword: Enter meeting location, Enter keyword

- Search by Keyword and Signature: Enter keyword #1, Enter last name of signature

3.3 Report Generation

All searches will create reports with the following information:

- Document Date
- Meeting Name
- Meeting Location

- Agreement
- Document Location
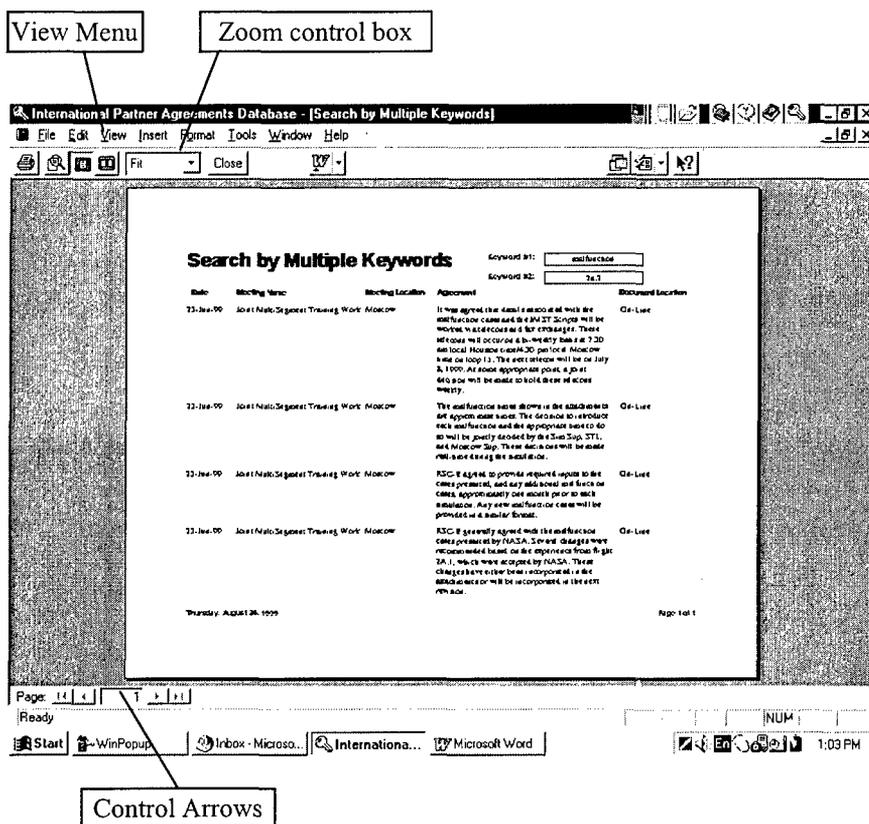
Diagram 12

Reports are best viewed with a "Fit" or 75% zoom setting. This can be selected from the zoom control box from the upper left corner of the report screen on the access toolbar. This option allows the user to view the entire report. If this control box is not available on the toolbar, then select View from the main toolbar, then select Zoom from the View Menu, and select "Fit" or 75%.

Also, controls are available on the lower left of the screen to move to the next or previous page if there are multiple pages in a report. These reports can be printed by selecting the print option from the toolbar. When done viewing the report, select the close button next to the zoom control box on the access toolbar. This action will return the user to the Start-up form.

Section 4: Future Work

4.1 Database Maintenance

The database will only be as good as the data that is entered into the database. Although it takes time to enter the agreements, the more information that is entered into the database, the more accurate the searches will be. The database should be available to all users in a read-only format. This format will allow users to conduct searches and view reports, but it will not allow for data entry or changes to the database structure. The database will also be available to administration users to allow for data entry and changes to the database structure if necessary.

4.2 Software Maintenance

This database was developed using Microsoft Access for Windows 95 version 7.00. If the database is used on another version it may only be used in a read only format. However, it is possible to update the database, but precautions must be taken to ensure that information is not lost when the update is complete.

4.3 Expansion of Concept

The database is intended to be put on CD-ROM so that many people will be able to access the database from many different locations. In addition it is a possibility to open the database to agreements with partners other than Russia. There is also the potential to expand the database to allow for use by the other international partners.